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BRICK and CLAY RECORD

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The publisher of a bu ss paper should dedicate his best efforts to the cause of B ess and Social Service, and to this end should pledge himself: To consider, first, the interests of the subscriber. 2. To subs e to and work for truth and honesty in all departments. 3. To minate, in so far as possible, his personal opinions from his new olumns, but to be a leader of thought in his editorial columns, to make his criticisms constructive. 4. To refuse to publish "p free reading notices or paid "write-ups;" to keep his reading mns independent of advertising considerations, and to measure news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

EDITOR'S CORNER

Comment, Criticism and Advice o
Live Issues Affecting the Man
facture, Marketing and Manifol
Uses of Burned Clay Product

HAVE YOU not at times been seriously handicapped by the lack of experienced and skilled workmen at your plant.

Have you not found it very expensive to employ incompetent men or to use competent men at excessive cost?

Are you systematically training skilled workers in your employ in order to overcome this difficulty?

These questions are straight and to the point, and should start the mental machinery of every clay plant owner working on this most important form of industrial preparedness, if thought has not already been given it.

If you have not been training an understudy for your pugmill man, and the latter fails to "show up" some morning, you are, to use a common expression, "up against it." You might take one of the men from the machine gang and set him to work tempering the clay as it enters the machine. And he may think that he is doing fine, but that does not pay for the cracked barrel or broken head of the machine caused by allowing the clay to pass thru in too dry a state, nor the delay incident to its repair, all of which could have been avoided by a little foresight and attention to this problem.

But the position of pugmill man is not the only one for which successors should be trained who can act when an emergency arises. The burner, machine foreman, setters, sorters, the steam shovel operator and others are just as important The last mentioned of these—the steam shovel operator—can stop the whole plant, where there is no one to take his place, by staying away unexpectedly.

While we are talking of preparedness, both national and industrial, let us pick out some of the weaknesses in our own plant organization and strengthen them, thus fortifying ourselves against the day when a delay may be disastrous to the business.

Get Together

"LET'S get together," writes a face-brick manufacturer in commenting on the paper, "Price Cutting," by J. Parker B. Fiske, published in the June 20 issue of "Brick and Clay Record." This manufacturer further says:

"In order to make the working of this plan effective I would think that not less than two-thirds of the face-brick tonnage entering any given market should co-operate, but I realize that it will take some faith and courage on the part of manufacturers to embark upon a course so new, and it may be some time before even a majority will endorse the project."

It is certain that co-operation and not dissension is needed to put the plan which has been advanced for the elimination of the price-cutting evil, into successful operation.

The more one reads of the epoch-making events that are taking place across the water, the more one realizes that it is a working together and an oblivion of self for the common good that is accomplishing tasks unparalleled in the world's history. The marvelous workings of the German military organization is co-operation raised to the nth power.

Those who are engaged in the manufacture of face-brick can make no mistake in applying some of the lessons that Europe is teaching us to t improvement of their business ar raising it to a higher level.

o-operation first, last and al-alw ys" should be their slogan.

he paper above mentioned has bee productive of considerable comme in the trade, both on the part of anufacturers and dealers, some of hich, it is hoped, can be included in e July 18 issue.

A Welcome Change

IF e clay products manufacturer s not know that the attitude of the ited States government in the past s been anything but co-operative vard the American business man, is because he has never had occas to correspond with Washingto r call on the proper authorities that point with regard to a matter hat concerned both himself and "U cle Sam."

Manu cturers and merchants, who have und it necessary to consult with fe ral officials as to whether or not the present or proposed plans constitu d a breach of the Sherman anti-trus law, have had to deal with lawyers ho had no more appreciation nor onception of the problems that a siness man faces than the Tin Man the "Wizard of Oz."

Howev , in the appointing of the recently- ated Federal Trade Commission, ortune was kind to the manufact r and merchant, one man, at least, o was really a business man, rec ng an appointment to that body—na ly, Edward N. Hurley.

Mr. H y says that the attitude of the go nment toward the business mar as taken a turn for the better a that the Federal Trade Commiss n its authorized agent,

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stands ready and willing to help every manufacturer and merchant, which means those operating clay plants as well as dealers' offices.

Mr. Hurley further says:

"If the government continues to improve its methods of corresponding with the business men, tax payers and others having dealings with it, and in other ways to recognize the community of interest between it and the business men, a much friendlier feeling will prevail and government and business will be united in a sympathetic effort to solve our great industrial and commercial problems."

If clay products manufacturers, and particularly their associations, are not aware of the benefits to be derived from co-operation with the Federal Trade Commission, they should most certainly get in touch with the last-mentioned body without further delay, if for no other purpose than to secure information concerning the activities of the Commission and to feel the warm grasp of its hand.

Builds Plant in Frame

A CORRESPONDENT, in a recent communication, advises that a certain brick and tile plant which is being reconstructed, will erect frame buildings until the growth of the business warrants those of a more permanent nature.

It is to be presumed that the parties purchasing the old plant made a careful investigation into the possibilities of the market before closing the deal, and that they expect to operate the plant for at least two or three years. Furthermore, it is to be presumed that the purchasers of this plant are acquainted, to some extent, with the arguments that have been advanced by brick manufacturers concerning the economy of burned clay building materials as compared with wood, even over a short period of years.

Why then the false economy and inconsistency of erecting clay plant buildings in frame. Surely this flimsy construction will not be productive of confidence in a customer's mind should he come to the plant and gain the impression that the manufacturer apparently does not have faith enough in the product he is making to use it himself? We remember the case of a drain-tile plant that did not make brick, but that when erecting its buildings, sooner than use any other material than everlasting burned clay, bought brick from a nearby plant—which was also a competitor in the drain-tile market.

A Good Energizer

A CLEAN SHOP interior has a healthy effect upon workmen, a fact that is corroborated by manufacturers who have whitewashed their machine and boiler rooms as an experiment, and found it successful.

There are two methods which may be used in getting results from the men in your employ; in one the role of the slave driver is prominent, while in the other, the efficiency engineer is the important factor. The former method belongs to the dim and dusty past when the Pharaoh's taskmasters put the ancient art of brickmaking upon the pages of history in a never-to-be-forgotten manner. But the latter, and more modern method, is the one to be followed by the present day clay products manufacturer, if the best thought and effort are to be obtained from the workmen.

A clean shop interior unconsciously brightens the minds of the men and stimulates them to quicker action. On the other hand the dirty, grimy walls, rafters and roofs which are all too common on the clayworking plants of this country, have a tendency to depress and discourage those who are compelled to look upon them six days out of every seven.

Some plant owners have inaugurated the very commendable practice of whitewashing at least the machine room two or three times a season. They say that it does not cost much and that it pays in the results which it produces. Ordinary whitewash or lime is purchased, mixed in a barrel or tub on rollers and then sprayed upon the walls and roof with a device that resembles a pump in its action.

This practice has another advantage which should not be overlooked. It is that the white surfaces of the room deflect a maximum amount of light to the floor and around the machines, thus contributing to the elements of certainty and safety where the danger of accidents is greatest.

"Kentucky Mountaineers"

WE OFTEN HEAR it said that there are men in the mountainous and inaccessible regions of Kentucky who do not know, as yet, that Lee surrendered to Grant nearly fifty years ago at Appomattox Courthouse, thus ending the Civil War.

However true this statement may have been a few years back, it is, no doubt, fast losing its veracity. But it brings to mind a parallel condition in the clayworking industry, namely, that there are many plant owners who do not know of the progress that modern methods and improved equipment are making. Like the Kentucky mountaineers, they have shut themselves up in the narrow confines of their own localities, never seeing the world or learning of what it is doing, unless the world comes to them—which it seldom does.

And even when the world does knock at their door and offers what it has in the way of inventions and efficiency methods designed to make the business of turning clay into superior building materials, less laborious and more profitable, not a few of these same men will refuse it admittance on the ground that they have nothing to learn. This is attested to by the fact that they refuse to subscribe for or read literature that pertains to their business.

There is only one excuse for antiquated ways of doing things in the clayworking industry, and that is a lack of capital. But that can hardly be called an excuse, since many improvements can be made in a plant at no greater cost than the expenditure of a little energy on the part of the superintendent or owner.

Therefore, why should there be any "Kentucky mountaineers" among those who have chosen as their life calling the manufacture of articles from clay?

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STOPPING *the* WASTE *of a* SCOVE KILN

How That Time-Honored Mother of Invention—Necessity—and a Resourceful Brickmaker Put a Quietus on a $150,000 Lawsuit and Saved Money at the Drier

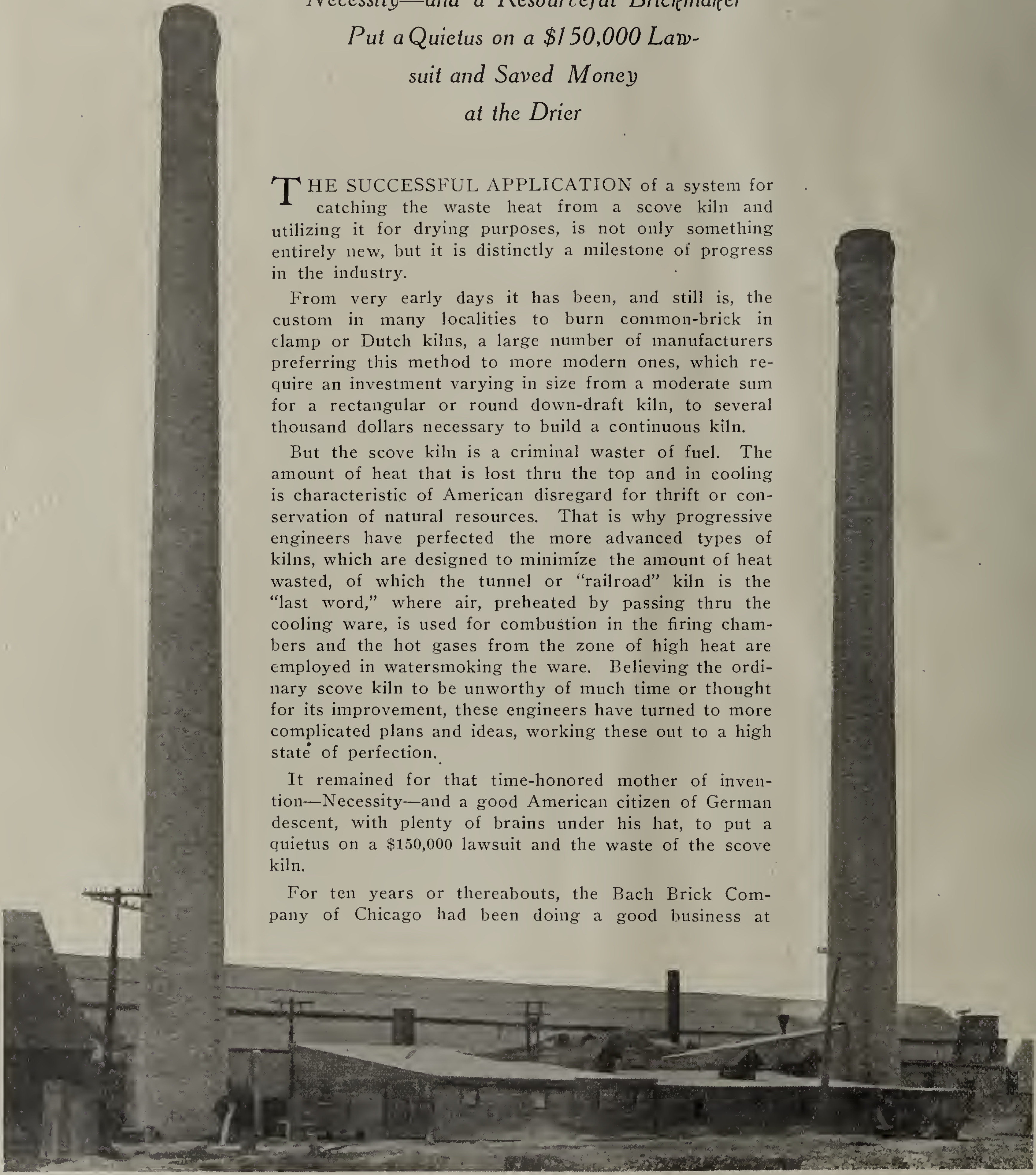
THE SUCCESSFUL APPLICATION of a system for catching the waste heat from a scove kiln and utilizing it for drying purposes, is not only something entirely new, but it is distinctly a milestone of progress in the industry.

From very early days it has been, and still is, the custom in many localities to burn common-brick in clamp or Dutch kilns, a large number of manufacturers preferring this method to more modern ones, which require an investment varying in size from a moderate sum for a rectangular or round down-draft kiln, to several thousand dollars necessary to build a continuous kiln.

But the scove kiln is a criminal waster of fuel. The amount of heat that is lost thru the top and in cooling is characteristic of American disregard for thrift or conservation of natural resources. That is why progressive engineers have perfected the more advanced types of kilns, which are designed to minimize the amount of heat wasted, of which the tunnel or "railroad" kiln is the "last word," where air, preheated by passing thru the cooling ware, is used for combustion in the firing chambers and the hot gases from the zone of high heat are employed in watersmoking the ware. Believing the ordinary scove kiln to be unworthy of much time or thought for its improvement, these engineers have turned to more complicated plans and ideas, working these out to a high state of perfection.

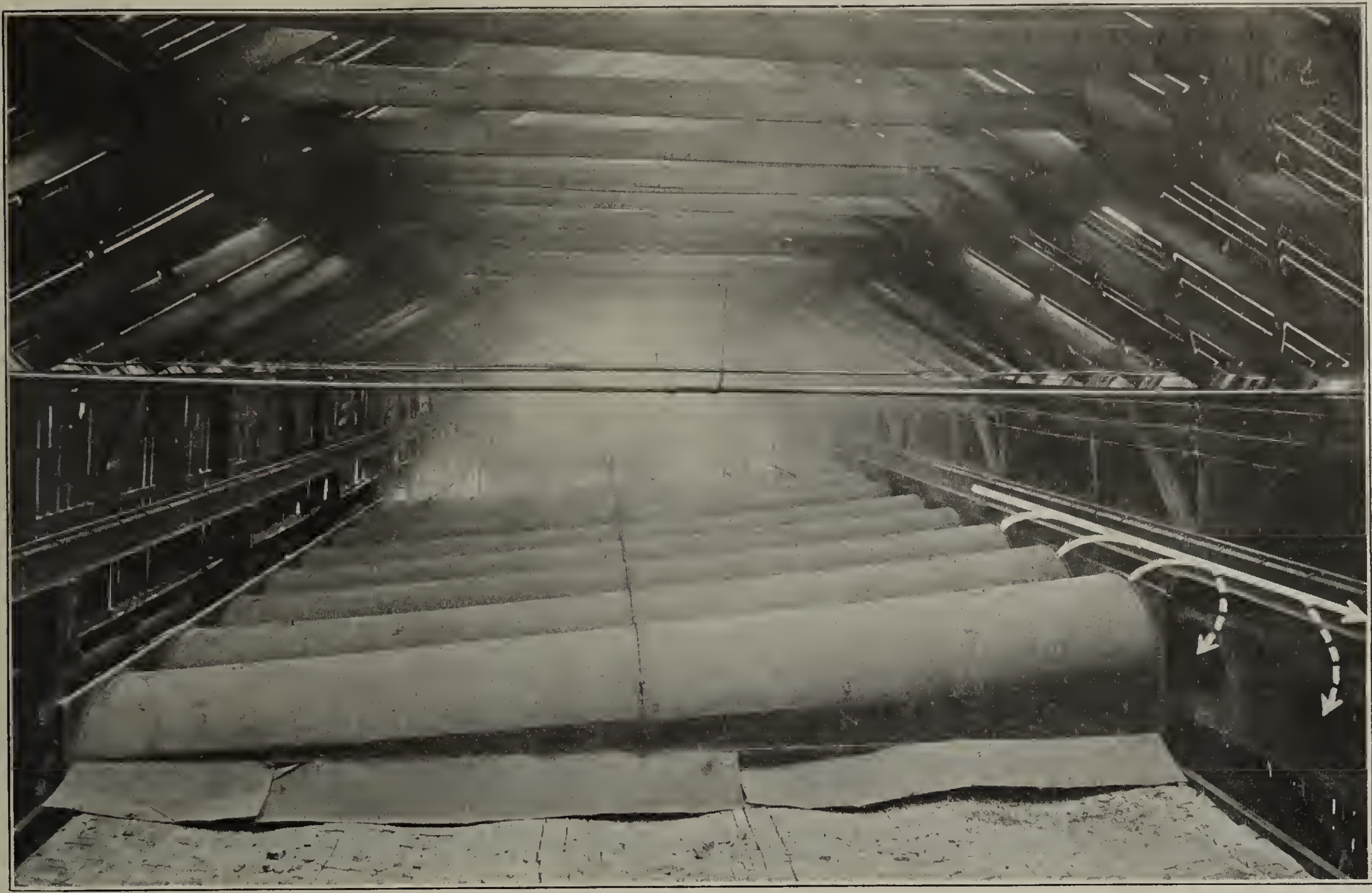
It remained for that time-honored mother of invention—Necessity—and a good American citizen of German descent, with plenty of brains under his hat, to put a quietus on a $150,000 lawsuit and the waste of the scove kiln.

For ten years or thereabouts, the Bach Brick Company of Chicago had been doing a good business at



Courtesy of "Factory"

Towering High Above the Plant, These Giant Stacks Are Only a Part of the Expense That Accompanied the Continued Operation of the Bach Brick Company at its Present Location



Courtesy of "Factory"

A System of Catching the Waste Heat from Scove Kilns That Can Be Adopted by Any Plant Using This Type of Kiln, with Moderate Expense, Especially in Localities Where It Is Not Necessary to Build Stacks as High as Those Shown on the Opposite Page

the same stand—in the northwestern part of the city—free from molestation and with nothing to disturb the calm slumber at night when the day's work was done, of the five brothers who operate this plant. That section of the city where the business was established was only sparsely populated in 1900 and so there were few to complain of the sulphur fumes that arose from the burning kilns—a marked characteristic of Chicago clays.

GROWTH OF NEIGHBORHOOD BRINGS LAWSUIT

However, with the rapid growth of the city, the number of dwellings in the vicinity of the plant began to increase in number until one day the company was notified that a bill, asking for damages to the amount of $150,000 was filed against it in a Cook county court, by nearby property owners, and particularly one large land company that was vitally interested in the development of the neighborhood.

It was then that the Bach brothers awoke to the realization that the business of manufacturing brick is not one sweet song. They began to get mighty busy trying to see what could be done to satisfy the demands of the plaintiffs without paying the $150,000. They soon found that those who had filed suit were inclined to be lenient and would call the matter off if some way could be found, within a reasonable time, whereby the noxious sulphur fumes could be eliminated.

Experts were called in to consult with the brothers, one coming as far as from England, in an effort to stop the fumes from spreading over the neighborhood.

One man suggested a plan. It was tried. He said that if the brick could be burned down-draft, instead of up-draft, that the problem would be solved. Work was immediately started upon what in reality was a continuous kiln, but without permanent walls, crown or floor. A large brick flue was built under both kiln sheds, running the length of the sheds, with smaller-sized lateral flues at right angles, spaced seventeen feet apart and feeding into the main flue. The kiln was then set much the same as usual, with the important exceptions that vertical fire shafts were built in the setting every four to six feet and the arches were made considerably smaller. These arches came opposite the opening in the ends of the smaller flues in the outside walls of the kiln. The sides of the kiln were mudded up but one end was left open where cord wood and coal were piled and lighted. This heated the end of the kiln to a fairly high temperature. When sufficient heat to ignite fuel had progressed to the first arch—leading down to which from the top of the kiln, fire shafts were built—coal was shoveled to the floor. This operation was repeated as the fire progressed, the draft being supplied by two high stacks built especially for this experiment. The draft in the kiln was horizontal, and entered the intakes on both sides of the main flue thru which it passed on its way to the chimney.

PAPER PLAN FAILED IN PRACTICE

While the plan looked good on paper, it did not work out in practice. It was impossible to get the brick above a red heat, try as hard as they would. When an excess amount of coal was thrown in, it would melt the brick in the arches.

After spoiling about a million brick, the brothers came to the concusion that the system was a failure and that something else must be tried or they would have to go out of business.

Sleepless nights and restless days followed in an effort to arrive at a solution of the problem, only to be broken by the inventive genius of Julius Bach, one of the brothers, who worked out and patented the system, a part of which is shown in one of the accompanying illustrations.

The system consists first, of a series of sheet-iron hoods which are placed over the top of the kiln. In the large shed which is the only one now being used and which is thirty feet wide by one thousand feet long, there are eight hoods in all, these catching the waste heat and fumes as they arise from the burning brick. These hoods operate on rails, much the same as a traveling crane, and are made fairly tight on both sides by separate pieces of sheet-iron as is shown in the accompanying illustration. The small end is sealed, while the large or discharge end leads thru dampered intakes three feet in diameter to a large flue—six feet in diameter—which extends the entire length of the shed. This flue is also built of sheet-iron and is covered with asbestos to conserve the heat that passes thru it. This flue was built with its lowest point about on a level with the top of the kiln. The waste heat and the fumes are drawn into the drier by a sixteen-foot fan, which is driven by a sixty-horsepower engine, where they are used to dry the "green" brick. The waste heat of combustion from the boilers in the power plant is also used in the drier. Since there is considerable soot in the gases from the boilers, the brick are black as they emerge from the drier. This soot, of course, burns off, the brick being finished with a bright, clean surface. No soot comes from the kilns, as oil, mixed with steam, is used for fuel, and there does not seem to be any serious objection to exhausting the sulphur fumes into the drier, the finished product being fairly free from scum.

NO MORE CAUSE FOR COMPLAINT NOW

The moisture-laden air and the gases are drawn from the drier by two 160-foot stacks shown in an accompanying illustration, distributing the sulphur fumes high above the heads of the surrounding inhabitants, thus doing away forever with the nuisance which formed the basis of the complaints against the company, and incidently, the $150,000 lawsuit.

But this is not the only advantage of the system herein briefly outlined. It was always necessary, before adopting it, to maintain separate fires for the drier. These have been eliminated with the waste heat system now used, saving six tons of coal a day, togther with the necessary labor of firing—which is not by any means a negligible item. It was not anticipated that as much as this could be saved, and so the economy in the drier has come as sort of a pleasant surprise.

No special machinery is required to move the series of hoods from one point to another over the kiln. As its progress is comparatively slow, corresponding to the travel of the fire from one end of the kiln to the other, a block and tackle has been found sufficient for this purpose. When two separate kilns are burned in this long shed, the electric crane which handles the mechanical brick setter, is used to push the hoods from one kiln to the other.

The Bach Brick Company manufactures a common-brick by the stiff-mud process, turning out about two hundred thousand a day. Its clay is gathered from a nearby pit with a steam shovel, loaded into cars and conveyed to the grinding room by means of a gasoline locomotive. The clay then passes thru the usual divisions of the process of manufacture, ending up at the point of loading into wagons to be hauled away to the job.

SYSTEM HAS WIDE APPLICATION

There is little doubt but that the system of utilizing the waste heat from a scove kiln, as described herein, should be of value to every manufacturer using this type of kiln in connection with an artificial drier. Various attempts have been made in the past to accomplish the result which the Bach Company has successfully attained, but without avail. The investment necessary for the adoption of this system should not be great, and when the saving in coal for drying purposes is remembered, it would seem that there is little argument left against its use.

Nearly four years have passed since this plan for utilizing waste heat was first put into operation at this plant and each year has proved its economy and efficiency.

Of course, the Bach brothers, being the pioneers, had to "pay the freight" of getting the system to the industry, and there is little doubt but that the amount of money which they spent in endeavoring to eliminate the fumes from the kilns, would have gone a long way toward paying for a continuous kiln. Yet the result of their experiments has been for the benefit of the brickmaker and they should be given due credit for their enterprise and tenacity in solving a difficult problem.

TERRA COTTA MAKERS MEET *to* BOOST PUBLICITY PLAN

Terra cotta manufacturers from all parts of the United States met at the Hotel Traymore, Atlantic City, N. J., on June 23 and 24, to attend the semi-annual meeting of the National Terra Cotta Society and to further the plan for conducting a nation-wide publicity campaign.

The meeting opened on Friday evening, June 23, with a banquet, which was followed by a business session on Saturday. Action was taken to place advertising copy in national, as well as local, publications. Already the society's advertisement had appeared in the "Saturday Evening Post," as well as New Jersey papers. Thousands of dollars will be expended to promote this publicity work.

Among the speakers at the meeting was William H. Powell, president of the Atlantic Terra Cotta Company, New York. W. H. Gates also had something to say of the work that has been done and is being planned by the society.

Another feature of the publicity work that is being carried on by the society is the publishing of books on terra cotta. One of these publications deals with store fronts and has been circulated all over the country, as well as Canada. A copy was also sent to India. Another book deals with terra cotta in schools and theaters. These publications are sent to builders, building material dealers, and so forth.

Clayworkers March in Preparedness Parade

While brick manufacturers and dealers, as a body, did not make arrangements to participate in the big "Preparedness Parade" held in Cincinnati, Ohio, on the afternoon of Saturday, June 24, members of the trade none the less managed to find places in the marching column of 25,000 men. The architects and builders had divisions in which those closely affiliated with the brick trade were conspicuous, and the brick dealers and manufacturers were among those citizens who marched with other business and civic bodies.

HOW PUBLIC RECORDS WILL ASSIST

in promoting the use of DRAIN TILE

Some Very Convincing Arguments Are Presented in This, the Third Article of the Series, in Support of the Estimate That Has Been Placed Upon the Value of Public Records of Drainage Improvements from the Standpoint of the Drain-tile Manufacturer.

Mr. Anderson Also Shows Clearly What Powerful Influences Will Contribute to the Success of a General Campaign for the Enactment of the Proposed Laws.

By John W. Anderson

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THE ENTHUSIASM with which drain-tile manufacturers will support a movement for the enactment of the proposed laws (for providing means for establishing and maintaining public records of private drainage improvements) naturally will be measured by their confidence in the efficacy of such laws in bringing about a general and substantial increase in the demand for drain-tile. Much interesting information of this subject was brought to light by an investigation conducted by the writer in Illinois, Iowa, Minnesota and the adjoining states. It is intended in this article to submit some of the results of this investigation in order that they may be considered by drain-tile manufacturers in the light of their own experience and observations.

It is quite evident that the proposed laws will serve no good purpose unless they offer, to the farmer and to others interested directly in his welfare, advantages which will invite their general utilization. It is this phase of the matter that emphasizes one of the "service" features of the movement. As an almost invariable rule, constructive sales development must be based on the rendering of some valuable service to the customer, and one of the strong features of this movement is in the fact that the first great service will be to the farmer.

ADVANTAGES THESE LAWS WILL OFFER TO FARMERS

Such laws will offer to the land owner a number of advantages which will influence him to prepare and record drainage maps. An understanding on the part of the farmer of the benefits in store for him will insure his enthusiastic support of the movement, and thereafter will contribute much to the general utilization of the facilities it is proposed to establish for him.

WILL HELP FARMER'S CREDIT

It is universally conceded that any improvement in the conditions under which credit is extended to the land owner will give a corresponding impetus to agricultural development. The farmer today is unable to borrow money on as favorable terms as are offered other industries. With but few exceptions, interest rates on commercial paper, for a number of years, have ranged from three to four per cent., while the farmer has been required to pay, during the same period, from five to six per cent. The difference between these rates represents an enormous tax on the business of the farmer and can be justified only by certain unfavorable conditions with which money lenders must contend in the field of real estate loans, and by the lack of well established and well organized facilities for borrowing on the part of the land owner.

Much legislation has been proposed and some has been enacted for correcting this condition. No attempt will be made here to discuss the various conflicting theories behind this "rural credit" legislation. It is believed, however, that the enactment of the proposed laws for recording drainage maps will carry with it certain very practical benefits for the borrowing land owner.

The stability in value of security offered determines to a very large extent the term for which loans will be granted. The value and stability of security determines also the amount which will be loaned. It is difficult to understand how an accurate appraisal of the value of a farm can be made without full knowledge of the character and extent of the underdrainage in service. Without this knowledge, money lenders find it necessary to keep within the bounds of safety by restricting the amount to be loaned upon a given tract to a figure lower perhaps than would be offered if an accurate showing of the value of drainage improvements could be made.

Certainty of income and the assurance that all interest payments can be made when due also increases the desirability of any loan. If adequate tiling can be shown by authentic public records, money lenders will feel assured that uniform income from the property may be expected from year to year, and undoubtedly will show a preference for loans on land where the extent of drainage improvements can be proved without great inconvenience and expense.

These phases of the idea have been discussed quite fully with a number of prominent establishments lending money on farm land. Without a single exception they welcome the thought that information as to tile drains in service may be generally available at a future date, and express without reservation opinions that the proposed laws will help materially to improve the conditions under which real estate loans are made. Oren E. Taft, president of the Pearsons-Taft Land Credit Company, Chicago, Ill., one of the largest concerns in the United States lending money on farm security, expresses an opinion which appears to be unanimous among such people. His letter follows:

"You have asked us to express an opinion with regard to the desirability of a bill which, if enacted, will provide a method by which a comprehensive plan of underdrainage of any particular tract of land may be made a matter of public record for future reference.

"We have no hesitation in saying that if this matter of record is not made obligatory upon the land owner, but is optional with him, it would seem to us to have no objections and offers *decided advantages* both for the land owner and for those who might at subsequent times be applied to for loans upon the property."

It has been suggested frequently that loan companies will put forth every effort to bring about the fullest use of the proposed facilities for establishing records of drainage. In view of their attitude, as expressed in the above letter, it cannot be doubted that their influence will be a powerful one.

WILL ATTRACT DESIRABLE RENTERS

From the importance attached by prominent men to the perils arising from what is called "absentee landlordism" it may be inferred that a very large percentage of our farms are operated by renters. There are good renters and poor renters. A good renter is one who builds up the fertility of the farm. He prefers a well-tiled farm because he finds it most profitable.

The renter with a good reputation is sought by owners of well-improved land. A land owner having an adequate system of under-drainage will recognize the advantages of its existence in attracting a desirable renter and no doubt also will see the possibility of accentuating this advantage by having his drainage made a matter of definite public record.

WILL ASSIST IN SELLING LAND

The land owner who has an adequate drainage system, but who has no means of proving it, is at a disadvantage in selling his farm. There are so many ideas of thoro drainage that to say a farm is "thoroly tiled" has come to mean but very little to a purchaser. It may indicate anything from a few scattered strings of tile to a really comprehensive system of under-drainage, and the purchaser is compelled usually to trust to luck with reference to this feature of his bargain. A land owner having an adequate drainage system will certainly appreciate the advantage of being able to establish its existence by reference to a public record. The natural tendency will be, for those seeking farms, to rely very largely on the proposed records for this class of information, for the simple reason that it seldom will be available from any other source.

WILL HELP IN LOCATING DITCH TROUBLES

Carelessness in the inspection of drain-tile and in methods of laying them sometimes results in the failure of one or more tile and a consequent interruption of drainage. Usually the existence of such trouble is not discovered until it is time to put in the crop and it is therefore important that the necessary repairs be made without delay.

The writer has seen farmers start out, accompanied by a number of employes, all armed with end gate rods, crow bars, etc., to be used in prospecting for lines of tile as preliminary to locating an inactive drain. All of this trouble and expense could be avoided by reference to an accurate map showing the drainage in service.

The same sort of maneuvering also is necessary when it has been decided that additional tile will be installed. Often very inefficient and needlessly expensive drainage systems result from inability to locate old drains in planning new extensions.

INFLUENCE TOWARD INCREASED DRAIN-TILE SALES

Assuming that the proposed records will be established by the farmers solely because of the benefit which will accrue directly to them, there remains the question of how this practice will increase drain-tile sales. There are a number of ways in which the sale of drain-tile will be favorably affected by the maintenance of these records.

Every time a land owner gets into trouble with a tile ditch or fails to receive from it the benefits promised, tile drainage *is* to some extent discredited. If not discredited, it has failed to show at its best, and the enthusiasm of the land owner for drain-tile is somewhat less than it otherwise would be.

The requirements of these laws can be made such that anyone can determine readily from the record just what kind of tile were used and just where they were put in. Thus, when failure or dissatisfaction is due to poor methods or poor materials the fact will be shown and a repetition of the error may be avoided. On the other hand good methods and good material will be credited with good results and the general tendency will be toward an improvement in drainage practice.

If you were commissioned today to gather information on which to base accurate comparisons of results of different systems of drainage and the life of different classes of tile, you would meet with considerable difficulty and your work would require a great deal of time and the expenditure of considerable money. Your showing could not possibly be complete over any considerable area because of the general lack of reliable records, to which lack reference has been made frequently in these articles.

Anything that will bring the evidence to the surface and that will facilitate such comparison will promote the use of better methods and better materials and will gradually bring into disuse inferior tile and inferior systems of drainage.

WILL DISCOURAGE FRAUDULENT REPRESENTATION

There has been a great deal of misrepresentation in the sale of real estate in this country. In many cases the deception has been deliberate, while in other cases purchasers have been misled thru unintentional inaccuracy in the statements of the land owner or real estate agent. When it is possible to rely upon public records, backed by the affidavit of a responsible engineer and by that of the land owner, the opportunity for mistakes as to the amount of tile in service will be reduced materially and credit for such improvements in selling a farm will necessarily be based on more accurate information. This condition will be welcomed by all reliable real estate agents and land owners. It will mean to the other class that they must actually put in the drains if they are to receive credit for them when the land is sold.

WILL HELP AGRICULTURAL SCHOOLS

Our agricultural colleges are established for the purpose of promoting farming interests. Farmers are realizing more each year the value of their service, and rely upon their advice in a great many phases of farming operation.

These agricultural schools have been unable to give to the subject of drainage that scientific treatment which it deserves, largely because of the lack of any reliable source of general information with reference to the size, location and extent of private drains. We will not go into details with reference to the influence of these schools on drainage practice and the value of their activities in the promotion of drain-tile sales. It is desired, however, to quote again from the letter from Prof. A. D. Wilson, Director, Agricultural Extension, University of Minnesota, as follows:

"The proposition of registration of tiled farms is new to me, but the plan certainly looks feasible. In fact, I can see no objection whatever to it, and can see many important advantages which would come from such registration. I thank you for calling this to my attention."

FARM PAPERS WILL CO-OPERATE

Farm journals are always ready to support movements which are of interest to their readers. The publicity which may be obtained thru such papers will be of great value, not only in securing the enactment of the desired laws, but in bringing about, thereafter, the fullest use of the facilities for establishing the proposed records.

Most of you, no doubt, have read the series of articles in the "Country Gentleman," by Mr. Elliott, which began in the March 4, 1916, issue of that publication.

Upon reading the first article the writer sent to the editors of the "Country Gentleman" the following communication:

"It is with satisfaction that the writer notes, in your issue of March 4, the beginning of the series of articles by Mr. Elliott. This series, the subject of which is beyond question one of the most important ever presented by an farm paper, should be productive of much improvement in the attitude of the farmer toward under-drainage.

"During a number of years devoted to a study of drainage practice and the underlying conditions affecting the promotion of the use of drain-tile, the writer formed a decided opinion that, before any very broadly constructive results can be accomplished, it will be necessary for the various state legislatures to perform a certain service for the farmer.

"Mr. Elliott steps squarely over the key to the situation when he says, in his article of March 4, referring to tile drains:

"'No visible marks of their existence appear, nor would they be suspected by a visitor, except at their outlets.'

"This condition contributes much, as compared with open drains, toward beautifying the landscape, increasing acreage for cultivation and toward simplifying farming operations. Our appreciation of these advantages, however, has kept us blind to the fact that herein also lies the source of an influence which offers the greatest resistance to all efforts toward promotion of the use of drain-tile.

"Not only are these improvements concealed from the visitor, but the farmer himself rarely has an accurate knowledge of his under-drainage—not one farmer in a thousand is in possession of a map of any kind showing the location and size of his drains, their depth and fall, and the character of the material used in their construction.

Tile drains are the farmer's most productive improvement, yet by a visitor (who may be a prospective renter or purchaser, or a representative of a company to which the farmer has made application for a mortgage loan) their existence would not be suspected except at their outlets and these outlets often extend thru large party drains, also concealed, to a distant stream or public ditch.

"The writer is informed of an instance where 'land sharks' floated an excessive loan on a large track of undrained land by putting in a few short lines of large tile and representing them to be the outlets of a comprehensive drainage system. The loan was made, not by an unsophisticated individual, but by one of our largest and most conservative companies dealing in land credits.

"Inability to establish definitely either the physical or potential value of his drainage improvements necessarily

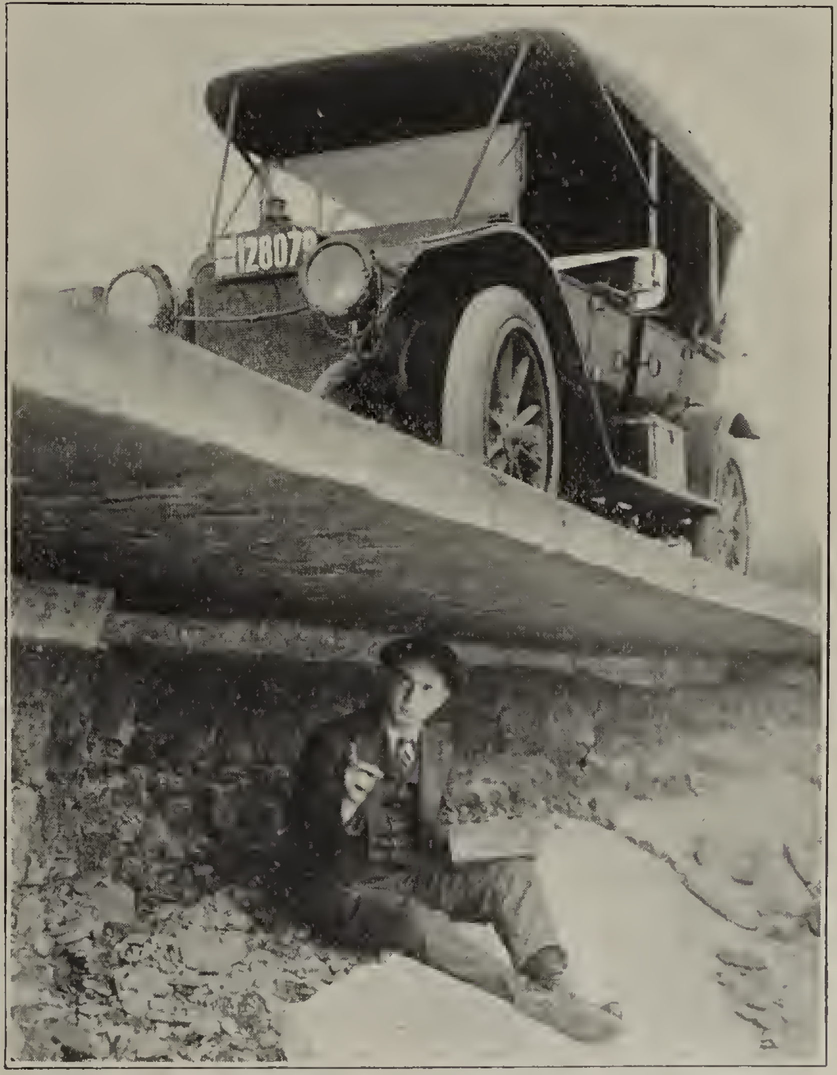
(*Continued on Page* 63.)

WASHOUT AGAIN SUBJECTS BRICK *to* SEVERE TEST

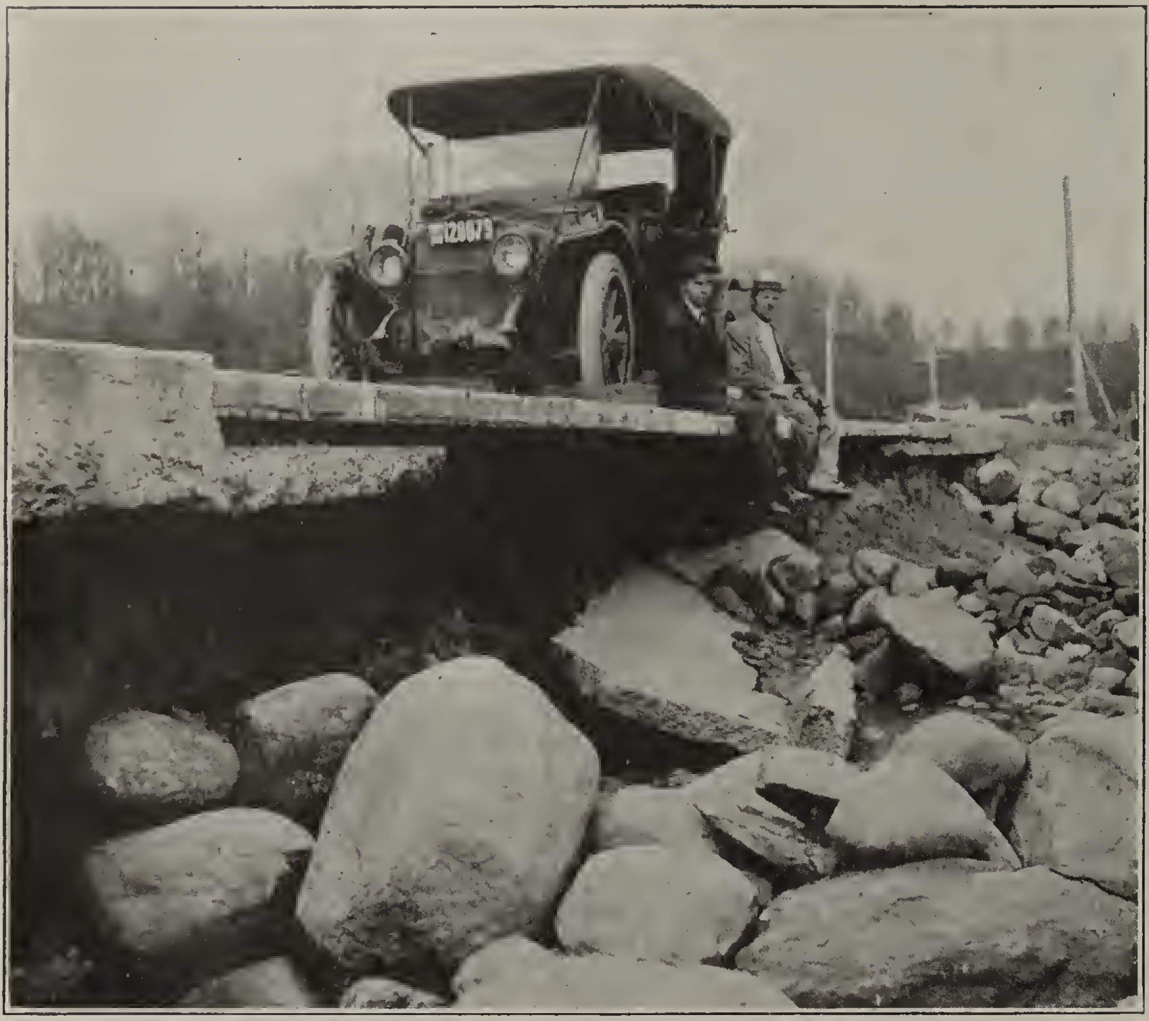
NO DOUBT many of those who attended the National Paving Brick Manufacturers' Association Convention held in Cleveland, Ohio, September 15 to 18, 1913, will remember that one of the stops made on an inspection tour at that time, was on Dunham Road, at Tinker's Creek, a short distance from Cleveland. The brick road at that point had lost its concrete base in the floods that created such havoc in Ohio during the spring of 1913, leaving the pavement unsupported. The washout was eighty feet long, ten feet high and eight feet deep. This pavement remained without a base all during the following summer, bearing the weight of passing automobiles and other traffic without the slightest sign of failure.

This accidental demonstration of the strength of the lateral bond in a brick pavement has been paralleled this spring, this time near Wooster, Ohio. The strip of pavement that was subjected to this unexpected and severe test skirts a small stream known as Killbuck Creek. Following spring storms, the water flowed over the road for many hours and much anxiety was felt for the safety of the pavement. When the waters finally receded, it was found that the bank had virtually disappeared. For a distance of sixty feet the concrete base had been washed away and nothing was left but a layer of brick bound together with a grout filler.

Randall Barrett, county surveyor, who went to the scene to provide for repairs, was astounded at the way in which the concrete had been gouged out by the current, but was doubly surprised at the weight that the unsupported brick pavement would hold. Not knowing that they had reached the spot, an automobile of inspectors stopped directly over the washout, but the pave-



An Automobile, Containing an Inspection Party, Failed to Register any Discernible Deflection in the Unsupported Brick Pavement



Some of the Large Boulders—in the Foreground—That Were Rolled Over the Pavement without the Later Showing the Least Sign of Failure

ment was not depressed any discernible amount.

But this was not the severest test to which the unsupported road was subjected. In refilling the hole made by the flood, according to Mr. Barrett, large boulders were brought, dumped upon the pavement directly over the hole, and rolled over the edge. Not a single brick was disturbed, he says. The road was rebuilt up to the pavement, reversing the customary order of construction.

Brick Garage a Prize at Detroit Excursion

The Builders and Traders Exchange of Detroit held its annual outing at Put-in-Bay, Wednesday, June 28. Charles F. Clippert was chairman of the entertainment committee. A $500 garage was given away as one of the prizes. The Detroit Brick Manufacturers and Dealers Association donated the brick, while others who contributed to the garage were the General Fireproofing Company, and the Dresden Brick Company. About six hundred builders participated in the outing, among whom were many brick manufacturers and dealers.

NEWS *from the* INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission during the past few weeks has handed down a decision in the case of the Cambridge Tile Manufacturing Company of Covington, Ky., against the Atlantic Coast Line Railroad, et al. The decision also took up a portion of Fourth Section application No. 703. In their syllabus in this case the Commissioners say:

"1. Rate of $5.26 per net ton for the transportation of bulk clay in carloads from Edgar and Okahumpka, Fla., to Covington, Ky., not shown to have been unreasonable. Complaint dismissed.

"2. Fourth Section Application No. 703 denied to the extent that authority is asked in it to continue rates on clay from Edgar and Okahumpka, Fla., to Miamisburg, West Carrollton, Middletown, Hamilton, and Lockland, Ohio, lower than the rates contemporaneously applicable on like traffic to Covington, Ky., and other intermediate points."

The Commissioners have also handed down their opinion in case No. 6995 of F. W. Lucke and Company of Chicago, Ill., against the Wabash Railroad Company et al. They say:

"Switching charges in excess of the line-haul charges on brick from Attica, Ind., to Harvey, Ill., found to have been unlawfully collected."

The Commissioners have also handed down their decision in the case of the Bibb Brick Company of Macon, Ga., against the Central of Georgia Railway Company, et al. They say in this case:

"Charges on a carload shipment of iron articles from Macon, Ga., to Dayton, Ohio, were assessed on the basis of the rate applicable to brick trucks, knocked down. Complainant's contention that the shipments consisted of scrap iron, on which a lower rate applied, found not to be sustained. Complaint dismissed."

In another case, that of the American Enameled Brick and Tile Company of South River, N. J., against the Raritan Railroad et al., the Commissioners held:

"1. Rates charged for the transportation of enameled brick in carloads from South River, N. J., to certain points in official classification territory and points west of the Mississippi River not found to have been unreasonable. Defendants authorized to refund certain overcharges.

"2. Rates applicable to the transportation of enameled brick in carloads from South River, N. J., to points in official classification territory found to be unjustly discriminatory to the extent that they exceed the rates applied by defendants on glazed terra cotta between the same points."

Workers Report Sanitary Pottery Plants Busy

At a recent meeting of the Sanitary Pottery Workers of Trenton, N. J., newly elected officers were installed. Great interest was shown in recent developments in the industry. Among the subjects discussed was the convention of the National Brotherhood of Operative Potters that opened at Atlantic City on June 23. One of the issues that was given much attention was that in relation to the preservation of the health of the operatives by the installation of modern equipment in the potteries.

Great interest is being shown by the members in a newly formed library which contains books on pottery and other subjects.

Reports handed in by the shop committees showed that the plants are working on good time, and that in contrast to the same period last year, the Mercer county potteries are very busy.

This renewed activity in the sanitary pottery plants is, no doubt, a result of the greatly enlarged volume of building operations that extends over most of the country.

The PATH *to* SUCCESS

in Operating a Continuous, Coal-fired

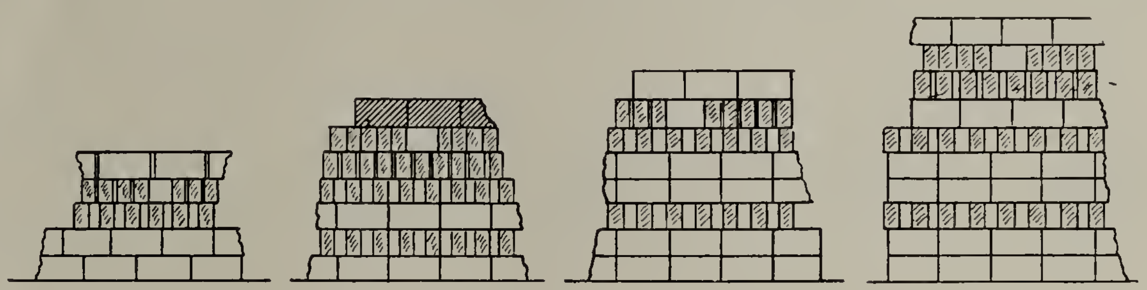
TUNNEL KILN

How to Avoid Expensive Mistakes in the Handling of this Important Piece of Clay Plant Equipment

By A. F. Greaves-Walker

Author of "The Design and Construction of Continuous Kilns," and other Timely Articles on Subjects of Vital Importance to the Clay Products Manufacturer

ANY DESCRIPTION of the operation of a continuous kiln of any type can only cover the subject in a general way. Continuous kilns of the same type, as is the case with down-draft kilns, differ radically in action, each kiln having its own peculiarities. Continuous kiln operators have worked for months with a kiln, every detail of which was familiar to them, without producing a single successful burn, yet men with no experience whatever have, by study and close attention to details, made the same kilns a decided success. The reason for this is that the men who are usually sent out to start a new kiln follow certain set rules and methods, while the man with only an elementary knowledge allows the kiln to make its own regulations—something it is bound to do in the end if it is to be successfully operated.



Sections Thru Race Flues

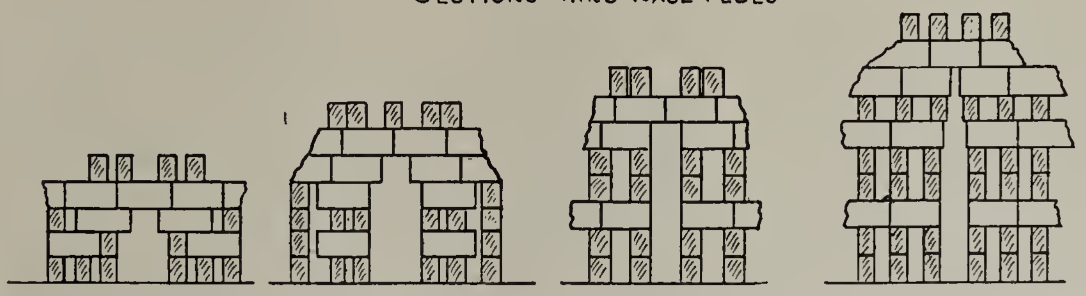


Fig 1—Methods of Setting Race Flues

Naturally the "standard" rules of procedure must be followed in the beginning and the necessary changes worked out from them as they are found unsuitable. Radical changes should not be made, the better policy being to change gradually.

In dealing with a new kiln it must be borne in mind that it takes from five to seven and, in some cases, even more complete rounds before normal operating conditions are reached. This is due to the large body of masonry which must be thoroly dried out and heated up, together with the drying out and heating up of the ground under the kiln. The bottoms usually give the most trouble on a new kiln and this must be expected. It is far more economical to accept soft brick in the bottom courses for the first few rounds instead of holding up the kiln and using fuel in an attempt to make them hard for, as a rule, not only is the attempt unsuccessful but brick are overburned on the top, and the kiln acts badly because of the impossibility of holding the "backing" heat for a long period.

Slack is generally used on all types of coal-fired continuous kilns and by far the best results can be obtained from its use. It is not the best practice to have the coal too fine, much better results being had when it ranges from dust to almost a nut size. Such coal burns freely and is not so likely to cake at the bottom of the fire shafts.

While the claim that a continuous kiln can be operated on very low grade fuels is true, nevertheless, the best and most economical results cannot be gotten from such fuels. The results obtained from slack, which is high in ash and low in volatile matter, are not to be compared with those from a high grade, clean slack and, as a general rule, it does not pay to use the former where the latter is obtainable. A high-grade fuel will not only give greater burning speed, but much less will be used per unit of ware. Thus a decided saving in the cost of burning is shown in nearly every case. Where high-grade ware is burned it is decidedly advantageous to use a fuel low in ash. The draft carries the ash and scatters it over the ware and, if there is a large quantity, much of the ware may be marred or spoiled.

The setting of the ware in a continuous tunnel kiln is, with little question, the most important point in the operation. On it depends to a great extent, not only the speed, but the quality of the resulting ware, and the fuel consumption. Many kilns which would have given good results have been condemned as failures thru the ignorance shown in this department.

The setting in this type of kiln differs from all others because the fire and draft moves in the direction of the length of the kiln. In other words, the draft, instead of being up or down, is horizontal.

Being generated, to a great extent, on or near the floor, the heat has a natural tendency to rise to the crown and this tendency can only be overcome by so arranging the setting that freer flow is given near the floor, while at the same time the draft is baffled by tighter setting towards the top. These conditions, coupled with the necessity for providing firing or fuel shafts in the setting, and also the necessity for counteracting the pull of the draft connections on one side of the tunnel, make the setting a difficult and intricate problem. In fact, setting ware in a tunnel kiln is in a class by itself, and requires considerable skill and head work if the best results are to be obtained.

TUNNEL KILN BEST ADAPTED TO CRUDER WARES

The tunnel kiln is really best adapted to burning the commoner grades of ware, in which clear color and flame flash are of little importance. However, it is successfully used for high-grade products. In such cases, special care must be taken to protect the faces or sides to be exposed when in use, from the flame, flying ash and fuel.

Setting plans are usually furnished with a new kiln, and a skilled setter is often furnished to start the work off right, but as every kiln develops its own peculiarities, the standard setting plan is seldom followed, entirely, for any length of time.

THE MANNER OF SETTING RACE FLUES

The race flues or trace holes, as the flues running along the floor and parallel to the length of the kiln are called, are variously set from two to eight brick high and are from four to eight inches wide. Their number is governed by the number of feed holes across the tunnel. No standard size can be laid down for these flues, as they are governed by the amount of ash in the fuel, the draft, the kind of ware being burned, the setting above them, and the general conditions under which the kiln is operated. The low, wide flues are recommended, as they do not complicate the setting as much as the high, narrow ones.

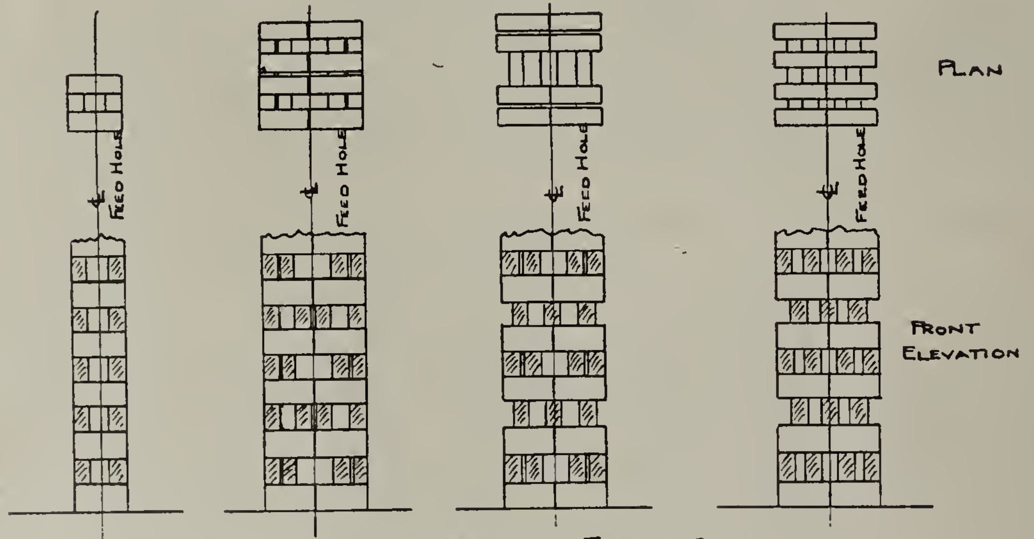


Fig. 2— Methods of Setting Firing Shafts.

As there is always a tendency for the heat to travel faster in the middle race flues, it is sometimes necessary to have the outside flues higher and sometimes wider than those in the center. In kilns with the tunnel continuing around the ends, it is necessary to vary the size of these flues, making the one nearest the inner wall the smallest and gradually increasing the size towards the outer wall. This prevents the gases from short-cutting, thru the shortest flues as they would do unless forced to take the longer route. Fig. 1 shows various methods of setting race flues.

Soft bottoms, one of the common difficulties of the tunnel kiln, are due in many cases to the size of the race flues. When too large, the cooler air has a tendency to run along the bottom thru these flues, thereby keeping the bottom courses chilled. This difficulty is often overcome by merely reducing the size of these flues. When using coals which are high in ash, care must be taken to provide sufficient height to prevent their becoming choked and thereby preventing sufficient air from reaching the fires ahead.

A GUIDE HELPS IN LOCATING THE FLUES

Unless the setters are skilled in continuous kiln work it is wise to provide a guide for locating the race flues in order to keep them straight. A guide consists of a board of a length equal to the width of the tunnel, with the correct location of the race flues marked upon it. It is quite important that the race flues be kept perfectly straight. Kinks and projecting brick interfere with the draft and make it impossible to standardize the kiln operation.

In determining the best type of fire shaft to use in a kiln, three factors must be taken into consideration: first, the size of the fuel to be used, whether very fine or very coarse slack; second, the quality of the fuel, whether high or low in ash and whether caking or non-caking; third, the kind of ware being burned, whether common and not effected by the flame flash and ash, or high grade and likely to be culled by flashing and ash.

The coarse grades of fuel usually burn faster than the finer grades (unless dust is used), and there is, therefore, less likelihood of their heaping up and caking and thereby choking the draft in the race flues. They also have a tendency to distribute themselves thru the length of the shaft better than the finer grades. For these reasons it is possible to set much simpler fire shafts when course fuels are used. See Fig. 2.

AN ADVANTAGE OF NON-CAKING FUEL

When non-caking fuel is used it is, of course, possible to allow more of it to drop to the bottom of the shaft without getting into difficulties with the draft, but when caking coal is used, whether fine or coarse, provision must be made to allow it to lodge at various points in the shaft. When fuels high in ash are used, and it is desired to have as few pieces of ware as possible spoiled by the ash, the shaft must be set so that as few lodging places as possible are provided, but at the same time enough so that the race flues will not become blocked up by the accumulation at the bottom.

When high-grade ware is being burned it is desirable to have as little contact between the ware and fuel as possible. This condition requires the fuel to be burned at the bottom. In cases where conditions prohibit such practice, common ware is set around the fire shafts or the ware which is set around the shafts is accepted as common or low-grade.

Combinations of the above conditions, of course, occur quite frequently, so that it is more often than not a case of experimenting until the most suitable method of setting the shafts is found.

Guides for setting the firing shafts are necessary if the best results are to be had. These guides are dropped thru the feed holes in the crown and extend to the floor. They are removed thru the holes when the shaft is completed. Shafts must always be set so that a clear view of the bottom can be had from the feed hole.

The setting of the benches depends to a considerable extent upon the draft used. The movement of the draft in a horizontal direction always has a tendency to overcome the disposition of the heat to rise from the bottom. Therefore, the stronger or higher the draft, the greater will be the concentration of heat near the bottom, and vice versa. This makes it necessary to set the ware tight at the botton and looser towards the top when high draft is used, in order to baffle the drift of the heat along the bottom and force it to the top. In case a low draft is used, the ware should be set looser at the bottom with a gradual tightening as it approaches the crown. There are, of course, many intermediate stages between the high and low extremes, but in each case the result to strive for is a heat balance over the entire cross-section of the tunnel, in order to get perfect heat distribution. Experiment alone will determine the best method for each kiln.

WARE SHOULD ALWAYS BE SET UP TO CROWN

In a tunnel kiln the ware should always be set up to the crown, otherwise much of the heat will travel along over the ware, with consequent loss of burning efficiency. The drop arches take care of this difficulty after the ware settles and for this reason they should be kept in good condition and the brick set tightly against them.

Two things to be constantly borne in mind are, that the heat must be kept ahead in the bottom; and that it does not pay to attempt to crowd the ware in a continuous kiln. Setting too close invariably increases the cost thru the slowing up of the fire travel. On the other hand, if the setting is too open, trouble will result from admission of too much air into the first zone, and thru the premature loss of "backing" heat.

PAPER PARTITIONS SHOULD BE PLACED WITH CARE

The lack of care in applying the paper partitions at the end of each section often results in poor operation. It is quite a difficult matter to put on a good air-tight partition, but it can be done. It is a good plan to train a careful man to do this work and put the responsibility on him. Ordinary flour paste will answer the purpose but it must be kept fairly thick. The paper must be of a kind that will not lose its strength when dampened by the moisture of the water-smoking period. In other words, it is best to use a paper that is as near waterproof as possible, but at the same time one that is not so heavy and stiff as to make it impossible to paste it to the brick.

Rats and mice are frequently numerous around a clay plant and these rodents are often the cause of considerable continuous kiln trouble. This is due to their eating the paper in order to get the flour paste, and in this way causing draft troubles which are hard to locate. Copper sulphate or other poisons should be dissolved in the paste, in such cases, or a cat trained to make its headquarters at the kiln.

(To be Continued)

Illinois Ceramic Instructors Seek Pastures New

When students who are enrolled in the course of ceramic engineering at the University of Illinois, Urbana, return to their classes in the fall they will be greeted by a faculty in which there will be a number of new faces. Arthur E. Williams has given up his connection to go with the United States Bureau of Standards at Pittsburgh, Pa., while R. R. Danielson, assistant in ceramics, has accepted a position with the Royal Enameling Company of Chicago. It may be possible that the next few months will also see Barney S. Radcliffe, instructor in ceramics, in a new connection, altho no definite information is now at hand regarding the exact nature of the change.

While these wholesale resignations will effect a considerable change in the personnel of the ceramic teaching staff, by fall, no doubt, a reorganization will have taken place and comprehensive plans laid for a profitable year's work at the university. Ralph Kent Hursh still remains as instructor in ceramics.

Cincinnati Builders and Brickmakers Hold Outing

As it was decided recently by the Cincinnati (Ohio) Brick Club not to attempt to hold a separate outing this year, similar to that of last summer, brick manufacturers and dealers took an active part in the outing of the Cincinnati Builders' and Traders' Exchange, held on June 27. Several hundred building and material men participated in the outing, which took the form of a day on the river. A steamer, towing a large flatboat on which most of the festivities took place, conveyed the crowd on a trip down the riger to Fernbank Dam and back up to a point above New Richmond, Ohio. Harold McDermott was officer of the day and, with a corps of able assistants, directed the program very successfully. The Brick Club felt that it would be better to take part in this outing than to compete with it, in a way, later on.

"Natco" Port Murray (N. J.) Plant to Be Enlarged

The plant of the National Fire Proofing Company at Port Murray, N. J., is to be increased about three times its present size according to plans completed early this month. The new additions will be erected near the present plant, the buildings being equipped with the most modern machinery. The power plant will have two boilers, each double the capacity of the present ones.

It is planned to double the capacity of the plant in ordinary times, but in an emergency the power and size of the new additions will enable the company to produce three times the present output.

The enlargement of the plant will also means the doubling of the present force of employes. About sixty men are now engaged in work there, but when the new factory is in working order the force will number more than one hundred and and possible one hundred and twenty-five. One reason for the additions to this plant of the "Natco" company is the fact that the clay at Port Murray is better adapted to the new rough-faced tile that the company has just patented.

"Rubber City" Builds with Brick and Tile

It is said that no town in Ohio boasts more fireproof buildings than Akron, whose builders have come to recognize that hollow-tile and brick offer about as economical a construction as any building material that can be had. In fact, it is stated by builders that there is hardly a structure of any kind under way in that Ohio town that is not using hollow-tile, not because plants making it are reasonably close, but because it is held that there is economy in its use as well as durability. Most houses being erected are of brick and tile construction, the outside walls being built of those materials. It is held that it makes a better and safer construction than brick veneer and that it costs less than a solid brick house, hence its popularity. A great many garages are being erected almost entirely of tile.

Real estate men in many parts of the country are advertising tile houses and making them a specialty in their circular matter, particularly thruout the East. Those who are doing this are said to be obtaining splendid results.

Washington's Home at Mt. Vernon—the Shrine of Every American Patriot

If Its Builder Had Known That Brick Could Be Made So Near, It Is Not Hard to Imagine That the Historic Mansion Might Have Been Built of That Product

MAKING BRICK NEAR WASHINGTON'S HOME

A Short Description of an Interesting Plant Using a Novel Machine for Making Brick on Land Originally a Part of the Virginian's Estate

By Lynne M. Lamm

DOUBTLESS Lawrence—half-brother to the "Father of His Country"—would have been very glad to have known that brick, such as he imported from England in 1753 to build his barn at Mt. Vernon, could be successfully made within a mile of his home and, as a matter of fact, on some of the very land that belonged to his estate. While the house at Mt. Vernon—which, together with the surrounding grounds and the plantation, passed on to George Washington upon the death of Lawrence and his only daughter—is not built of brick, several of the outbuildings and many of the walks and walls are, all of the brick being purchased abroad and shipped to America.

MANSION MIGHT HAVE BEEN BUILT WITH BRICK

It can easily be imagined that the shrine of every American patriot—the mansion where Washington lived and died, which is now built of wood and kept in constant repair by careful and loving hands—might have had brick as its principal material to stand as an enduring monument for many generations to come. But it was expensive to bring brick from England, as desirable as it was, especially in view of the vast, virgin forests on every hand which offered an easily accessible material that could be had for the cutting. And then the art of brickmaking was rather new in the colonies at that time, which probably explains why Lawrence did not make use of the clay which was, figuratively speaking, at his very elbow.

It is at Riverside, Va., just one mile from Mt. Vernon, and as above stated, on some of the property originally a part of the Washington estate, that the Washington Brick and Terra Cotta Company is today turning out some 50,000 brick a day. The property, comprising about one hundred and sixty acres, contains good brick clay and the present plant has been established for a number of years. Thru it runs what is known as Little Hunting Creek, which also passes thru the Mt. Vernon estate and from which water is furnished to the plant. The property was purchased years ago from the original Washington estate and has remained in the hands of some old Virginia families for many years.

"WHEEL MACHINE" A FEATURE OF INTEREST

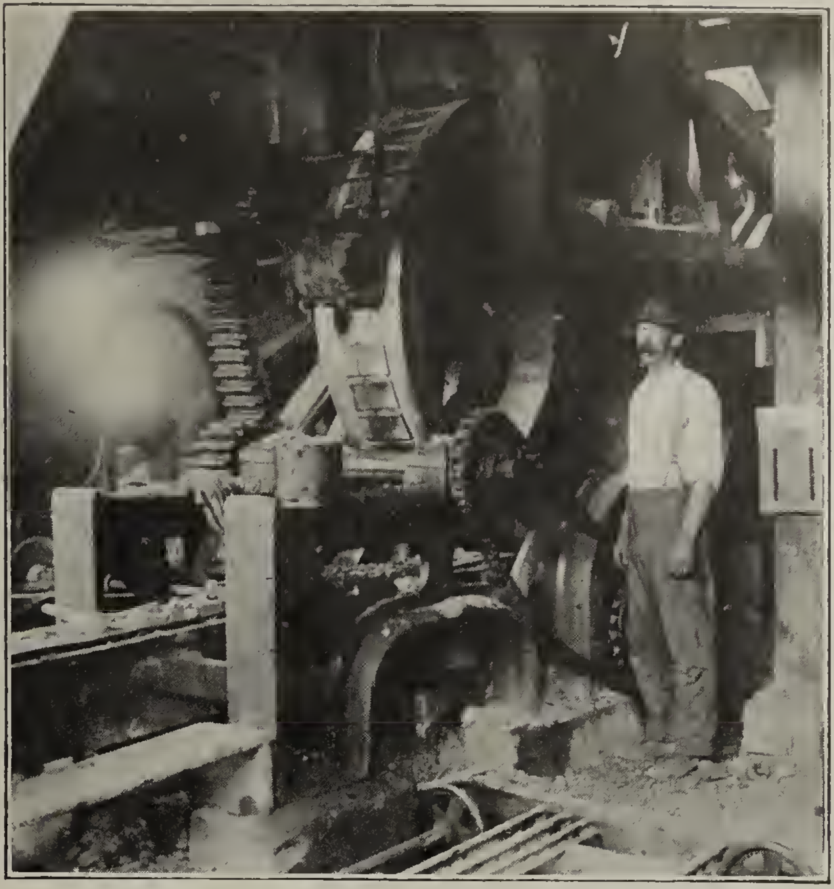
One of the most interesting things in connection with this plant is the fact that it has what is known locally as a "wheel machine" for making soft-mud brick. Insofar as can be ascertained, this plant, together with a few others in the vicinity of Washington, are the only ones in the country using this type of machine. The device consists of two large wheels, as is shown in one of the accompanying illustrations, one of which contains forty-two molds the size of a brick. Clay is fed into the machine at a hopper on top, passing down to the top of the wheel which carries the molds where it is forced into the spaces provided for its reception and then pressed against something that resembles a large fly wheel, shown in the rear of the picture. When a mold containing the brick reaches the bottom of the wheel a plunger in back forces it out onto a conveyor belt from which it is picked off by the hackers and placed on the drier cars.

It is understood that these machines are no longer manufactured. The one in use at this plant was made by the Phoenix Wheel Iron Works of Trenton, N. J., long since gone out of existence. When another machine, or repair parts are wanted, the owners have castings made and reproduce or repair their own machines.

PAST SHOWS THE IMPROVEMENT IN EQUIPMENT

It is only by looking back over the past that we are able to fully realize the wonderful progress that has been made in the last decade or two in the industry, particularly as regards the improvement of clayworking machinery. This rather clumsy and slow machine, which many brick manufacturers would now look upon with mingled curiosity and contempt, is only a step in the development of the present efficient equipment. As a sign of the advance of progress and the gradual elimination of wasteful methods, this company has installed a new soft-mud brick machine of a type familiar to all large, up-to-date manufacturers, which also has a capacity of 50,000 brick per day, but which works more efficiently. Unfortunately, owing to the way in which the machines have been placed, only one of them can be operated at the time, and it is not the purpose of the company, so it states, to change this arrangement, altho this could be done without any great trouble. This stand might be explained by the fact that this yard is operated in conjunction with the other yards of the company, but owing to the fact that it is much further from Washington and more inaccessible, only the excess orders are placed for filling at this point.

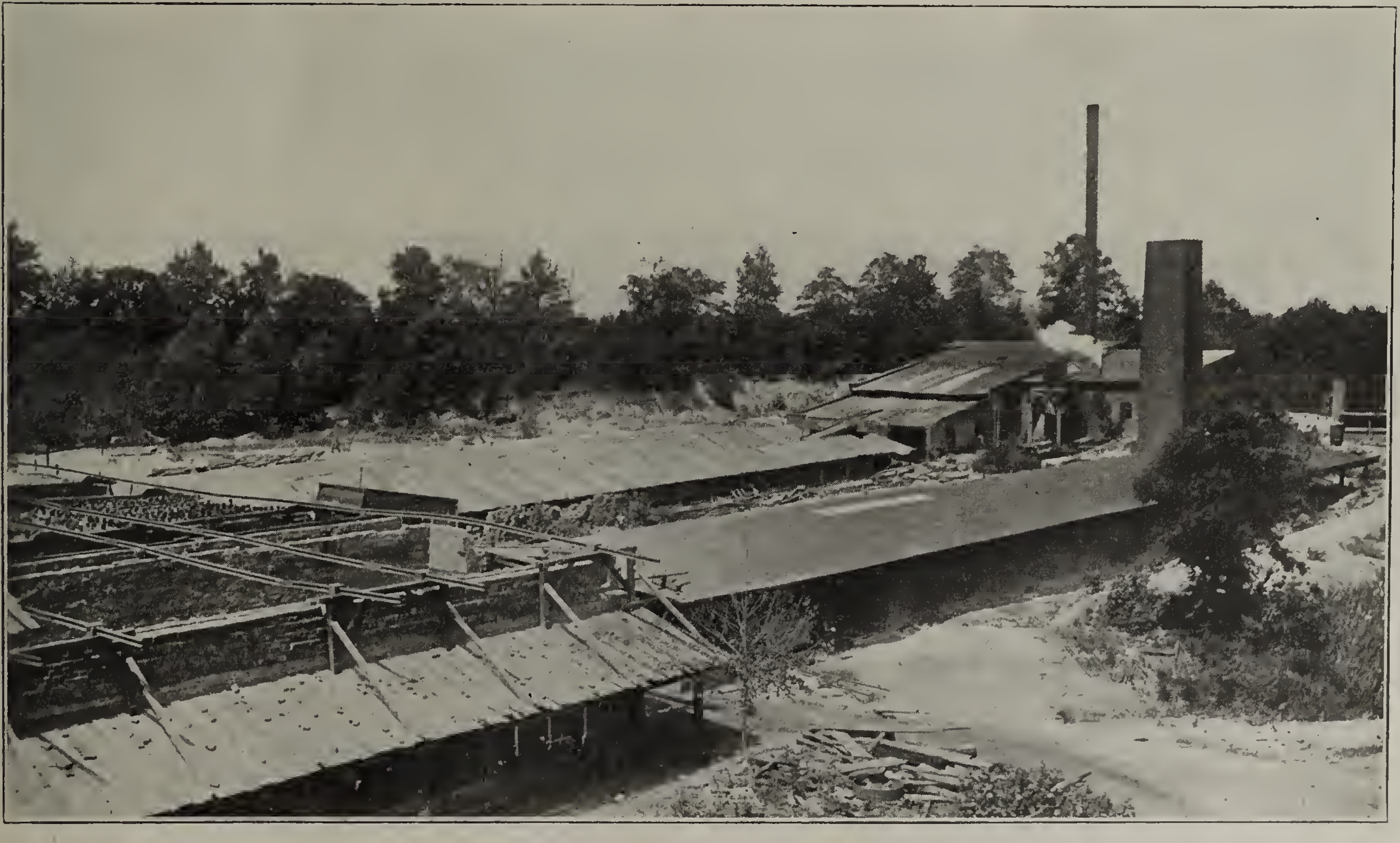
The brick that are made on the "wheel machine" are of a cheaper grade than those turned out on the other soft-mud machine and sell, delivered in Washington—sixteen miles away—at from six to eight dollars per thousand.



Altho No Longer Manufactured, Most of the Common-Brick Plants in the Vicinity of Washington (D. C.) Still Cling to the Old "Wheel Machine"

As has already been mentioned, this plant is very inaccessible. Coal is towed to it in barges and the finished product is taken to Washington in the same manner, no railroads passing near the plant.

The clay is gathered in the pit with a steam shovel and is loaded into two-yard cars and hauled to the plant. After



A General View of a Typically Southern Plant—That of the Washington (D. C.) Brick and Terra Cotta Company

being molded, the brick are placed either in the one artificial drier which the company has at this plant or they may be placed in the open drying sheds of which there are three, measuring thirty by one hundred and thirty-five feet. The kilns are four in number and have a capacity of from 317,000 to 320,000 brick. They are of the permanent wall, scove type such as are seen on many southern brick plants, with roofs built along the sides a short distance from the top to protect the firemen and burner from the hot summer sun.

One of the interesting features of this plant, particularly so to the manufacturer of the north or west, is the fact that almost all of the laborers, about sixty-five in number, are negroes. They are, moreover, of the Virginia type, and live in the surrounding towns or villages. They sing their darkey songs all day long, happy while they are at their work and while they have some silver in their pockets. George R. Deavers, the superintendent at this plant, who has been in the business of making brick for more than fifteen years, says that they are good workers —contrary to the general impression—and that they are "hard to beat." The common laborers get fifteen cents an hour for a nine-hour day, while the setting gang gets $2.50 per day.

The Washington Brick and Terra Cotta Company has two other plants, one in Washington proper and one at Arlington Junction, the total output of the three plants being more than 200,000 common-brick a day.

But to wander back to Mt. Vernon and its connection with this typically southern brick plant, it is interesting to note that some of the brick from this plant have very recently been used in repairing the walls and walks surrounding Washington's home. Mt. Vernon is a mecca for tourists and travelers from all parts of the globe, and there is hardly a day passes in seasonable weather that does not see a throng worshipping at this most beloved shrine, but few realize that only a short distance away is a brick plant that is almost as interesting as the noble Virginian's estate.

A View of the Washington (D. C.) Brick and Terra Cotta Company's Plant from Little Hunting Creek

Campaign for New Brick Streets in Cleveland

The first definite step toward obtaining real pavement for the important streets of Cleveland, Ohio, will be taken on August 8, when a bond issue of $3,500,000 will be voted upon by the people. The proposition also will include the opening of the dead-end streets and the widening of certain avenues. County Engineer W. A. Stinchcomb has listed the main arteries of traffic that are most in need of repair at this time, and it is probable these recommendations will be acted upon first.

The Barn at Mount Vernon Which Was Built of Brick Imported from England in 1753

How much of the new paving will be of brick is problematical, at this time, but a vigorous fight is being made by the National Paving Brick Manufacturers Association. In this move the Cleveland Automobile Club and the Cleveland Real Estate Board are enthusiastic backers.

The value of monolithic construction of brick pavements is being emphasized at this time, and to promote this phase of the work pamphlets are being distributed. These booklets contain an excellent treatise on this type of construction by Maurice B. Greenough, instructor in highway engineering, Case School of Applied Science.

Governor Glynn Again Upholds Brick Paving

Governor Glynn of New York, in a recent message to the legislature on road building in that state says: "Brick roads have been laid in hundreds of cities and have everywhere demonstrated their durability. Brick roads have been down for twenty-five years and have admirably withstood the test of the hardest kind of traffic. The annual cost of maintaining these brick roads has been remarkably low, ranging from practically nothing to from $10 to $50 per mile.

The PYROMETER— *a* COST-CUTTING AGENT

The First of a Series of Articles Designed to Clear Up Some of the Fog That Has Surrounded the Merits of Thermo-Electric Pyrometers

By C. O. Arbogust, Cr. E., and L. J. Sheridan

DURING the last few years there has quietly developed in the clay products field practically a new interest in pyrometers for use in the measurement of high sustained temperatures in kilns.

Previous to this new interest stage, the pyrometer had been used with varying amounts of success or failure—the latter predominating.

There was undoubtedly a discouraging percentage of pyrometer installations that were not successful, these influencing in a negative manner possible users, altho there were plants scattered at wide intervals having installations so successful in their continuous operation and showing such definite savings in time, labor, fuel and increased value of ware, that the average man was more mystified than ever. Evidence of the value was contradictory and, as a consequence, there was an inclination to openly doubt and even to severely condemn the pyrometer as an unreliable nuisance, simply on its superficial record.

A feeling of doubt was natural; had it been otherwise it would have been contrary to the usual reception accorded any marked or advanced thought, for the entire history of human endeavor is filled with like cases and you can easily recall the difficulties encountered by the various promoters during the early stages of the introduction of the telephone, the steam engine, the automobile and so on ad infinitum.

It is true, of course, that the development of the pyrometer pursued a quieter course, but the history of its development runs parallel in a great many phases to those mentioned.

Similarly as in the industries above noted, there were a few manufacturers of clay products and ceramists who recognized the need for an accurate high temperature recording instrument and these men, working in conjunction with the pyrometer manufacturers, evolved in time the basic laws and principles that must govern the measurement of high sustained temperatures under clay plant conditions. These laws and principles have since been found to be of almost universal application.

After a period of time it became generally known that the causes contributing to pyrometer difficulties could be roughly catalogued into the divisions as shown:

1. Fragility.
2. Installation selected not suitable to conditions.
3. Ignorance of operator.

FRAGILITY

At first the only instruments available were those designed for use in laboratories, and both the instrument and the couple proved to be too delicate for use in commercial operation.

The galvanometer was extremely sensitive to jolts and vibrations, and it was necessary to keep it level and on a solid foundation, but in spite of utmost care it became easily out of adjustment.

The tubes used to protect the elements of the couple were prone to crack and disintegrate from causes unaccountable at that time.

INSTALLATIONS SELECTED NOT SUITABLE TO CONDITIONS

This division lends itself to a discussion from a variety of angles and evidently the arguments are not yet settled to the satisfaction of all factions.

The proper selection of the entire equipment depends entirely on existing local conditions, and it would not be feasible to make recommendations here as this will be discussed in detail later.

Suffice it to say that as usually is the case, the cheaply-made instrument and accessories soon became the most expensive installations; for it is undeniably a fact that the conditions encountered on a clay plant are, in the majority of cases, exceptionally severe on the pyrometer, necessitating the selection of a robust installation. This includes both the indicating and recording instruments and particularly the kind of couple used.

Temperatures attained are rarely under 1,800 degrees F., and in the shale and fire-clay industries they will average from 200 to 300 degrees more, sustained for a considerable interval of time. Consequently the consensus of opinion strongly favors the use of high-grade equipment only.

The selection of unsuitable instruments is certainly more often the fault of the buyer than the maker who sells, and is usually a grievous case of false economy. It is a situation that must be faced squarely, as the entire immediate future of clay plant pyrometry depends upon the proper and the intelligent selection of equipment. You must "Buy Well."

IGNORANCE OF OPERATORS

In the past this loomed up as a very serious obstacle, but it bids fair to assume much smaller proportions in the future.

The operators, usually the superintendent, the burner and the firemen, were the despair of the pyrometer advocates. They were as a rule unacquainted with the principles, having usually formed advance opinions of their own, made up of the rags and tags of rumor, and invariably could be classified as:

1st—Openly antagonistic.
2nd—Openly indifferent and secretly antagonistic.
3rd—Wildly enthusiastic.

There were no neutrals.

One extreme was totally devoid of imagination, and in themselves were utterly incapable, due to this attitude, of either analyzing results or seeing visions of the probable possibilities of the use of pyrometers.

The other extreme expected too much and demanded too much of the installation, and soon reverted to a feeling of distrust and disappointment when the installation failed in itself to perform the marvelous deeds attributed to it, even tho it had not had intelligent constant study and supervision.

PRESENT STATUS

During the last four years there has been a truly marvelous development of pyrometers. The fragile laboratory type of both indicator and recorder has been eliminated, the couple protection tubes have been improved so that longer life of couples is assured, the cold junction error has been minimized, and the entire trend and tendency has been towards a robust, relatively accurate and dependable instrument.

The operators have become accustomed to its use, and after some years of intensive thought and study have come to rely on it as an ally and a necessity, and not as a task master demanding harder work.

The trail has been blazed, the real pioneering finished and the pyrometer has today fully demonstrated its right to existence. In numerous instances, as will be shown later, the pyrometer has enabled the operating burners to reduce the time of burning, the labor required and the fuel consumption, and this coincidently with an increase in the value of the ware produced.

COLLECTING *by* MAIL

In Which is Outlined a Plan, Including Letter and Postal Card Forms, Whereby a Slow Payer May be Made to "Cough Up"

By W. D. Parker

SLOW AND BAD ACCOUNTS cause the average business man much annoyance and loss, and are often the direct cause of bankruptcy. It therefore follows that any method of handling them that shows a maximum of efficiency with a minimum of effort, friction and expense is worthy of serious consideration.

This article will outline a system that is the result of over fifteen years' experience as an attorney and credit man for several large business houses. It is adapted to either a large or small business and has "made good" wherever adopted.

The basic idea is that a business man can, in most instances, handle his own collections to better advantage than by turning them over to collection agencies or others, and that it is neither necessary or politic to use bluffing or intimidating methods.

It has been found that the basic elements of a successful collection system are persistency and courtesy, not bluffs and threats. You know that a severe storm, or a series of them, will have small effect upon a stone, while a constant dripping of water on the same spot will wear it away.

The system here outlined consists of five letters and a legal postal card follow-up system, and will keep after the slow debtor over forty-five days at a total postage cost of not exceeding twenty cents. The forms given for the letters are to be written on the letterheads of the business house using them, and the card form on ordinary government postal cards. They will not be nearly as effective if printed and afterwards "filled in", and they are so short that it is not at all necessary to do so, even where several hundred accounts are involved, as only twenty-five minutes of a typist's time is required on any one account, even if it is necessary to continue the system to the very last card, which will very seldom happen.

When intending to use this system on a certain number of accounts, it is best to make an alphabetical list of them on a long sheet of paper, noting the name, address, amount and date of the last item, leaving about an inch of blank space after each account in which to note the dates of mailing the form letters and cards. When an account is paid or satisfactory arrangements made, it should be crossed off the list, thus leaving a correct list for the next mailing.

Letter No. 1.

Mr. Slow Pay,
Chicago, Ill.
Dear Sir:

In looking over our books today we find a past due balance standing against you in the amount of $———, running back to ———.

Will you kindly mail us your check for this amount or advise us at once if you find the balance incorrect?

Thanking you in advance, we remain

Yours very truly,

Letter No. 2.

Mr. Slow Pay,
Chicago, Ill.
Dear Sir:

We wrote you ——— regarding a past due balance on your account of $———, running back to ———, and so far have not heard from you.

Please let us hear from you at once, so that we will know whether you consider the balance correct, and when we may expect your check.

Yours very truly,

Letter No. 3.

Mr. Slow Pay,
Chicago, Ill.
Dear Sir:

Our letters of ——— and ——— regarding

a past due balance of $——— on your account remain unanswered.

It certainly seems to us that you might at least grant us the courtesy of an answer, even if it is inconvenient for you to send your check just at this time.

Kindly favor us in this regard, and oblige

Yours very truly,

Letter No. 4.

Mr. Slow Pay,
Chicago, Ill.
Dear Sir:

We are much surprised at your failure to answer any of our several letters regarding your past due account. Our letters have surely been courteous, and we feel that we have treated you fairly in every way.

You know, of course, that unless we hear from you we will be compelled to adopt other means of collection, which we very much dislike to do.

It will save both of us useless expense and annoyance if you will let us hear from you at once, stating just what you propose to do.

The writer will hold this account on his desk until the morning of ————, and will depend upon hearing from you by that time.

Yours very truly,

Letter No. 5.

Mr. Slow Pay,
Chicago, Ill.
Dear Sir:

As we did not hear from you this morning we had fully decided to take other steps to enforce settlement of that past due account.

However, a business acquaintance advises us that he believes you to be entirely prompt and reliable, and we have therefore decided to wait a few days longer.

You must surely realize that your credit standing depends on your fair dealing, and fair dealing certainly requires you to answer our letters.

Of course, we realize that it is entirely possible that you have neither received or read our previous letters personally. In view of all the facts we shall expect to hear from you at once.

Yours very truly,

Postal Card Form.

We wrote you
————, ————, ————, ————,
and ————. *No reply. Why? It is important that we hear from you at once.*

Send the letters at intervals of a week and the cards every other day for twenty days, following letter No. 5, allowing at least three days for answer to last letter. Fill in the blank spaces in second line of card form with the dates of the five preceding letters as, 1/1, 1/7, 1/14, 1/21, and 1/28, thus making a solid second line of dates, *in figures.* Add nothing to wording of card form except signature, which should be written with pen, down toward right hand bottom corner of card; do not date. The letters should be single-spaced between the lines and double-spaced between paragraphs.

It will be noted that the first three letters are very short indeed, and yet they say all that is necessary or advisable at this stage of the correspondence, and also ask a question that demands an answer whether the debtor is able to pay just at that time or not. They are so mild that they can be sent, without giving offense, to perfectly good, but slow debtors, and yet they form an effective basis for the letters that follow to the slower and more doubtful debtors.

The fourth letter takes the place of the usual "threat to sue" letter, and is fully as effective. Without committing the writer to any definite action whatever, it leaves the matter open so that he can effectively continue his mail campaign. The fifth letter is a reversal of the threat to "list" or to let other business men know of the indebtedness, and is even more effective without being offensive. It flatters instead of threatens and it winds up by giving the debtor an excuse for his past failures to respond to the letters that have been sent him.

But some men do not read letters and it does not matter much what you write them. Here is where the postal cards come in. While they say nothing at all about an account, and are consequently perfectly legal, yet they furnish an inexpensive form of persistency that certainly does get results.

In conclusion, let it be emphatically stated that this system will not get money from a man who has none, or secure any other impossible result, but it will bring in the most money possible out of past due accounts, if used according to instructions, and it will not involve the user in unnecessary expense or useless litigation.

Changes in Auburn (Pa.) Shale Brick Company

The management of the Auburn Shale Brick Company which operates large plants at both Auburn and Gettysburg, Pa., has undergone several changes in the past few months. The office formerly maintained at Gettysburg has been discontinued and all the work previously done there will be taken care of by the general office at Auburn.

W. F. Oswald, formerly general manager, severed his connections with the company on April 1 and has been succeeded by W. E. Dornbach, who previously acted as superintendent of the Auburn plant. To fill the remaining vacancy, E. H. Dougherty has been appointed superintendent of the Gettysburg plant. Excavation work has started at the Auburn plant for the construction of two new kilns and additional drier tunnels.

Owing to a lack of capacity, this company reports that it was compelled to turn away a large amount of attractive business during the past few months, but has now got the plants up to a point where all the orders received can be conveniently handled. Business is reported as being far beyond the earlier expectations of the company and, if the balance of the year is as good as the first half, there is no doubt but that 1916 will be a banner year.

Brick Paving in Pennsylvania Low in Cost

The Municipal Statistics and Information Division of the Bureau of Statistics and Information of Pennsylvania rendered a report recently on paving conditions, cost and methods followed in twenty-eight of the thirty-one third class cities in Pennsylvania.

The facts gathered show the number of miles of paved streets, the kind of paving used, the price paid, and whether this price is assessed solely or partly against the property owner that abutts the street, and many other items of interest. Among the prominent facts brought out is that brick paving is the cheapest.

It was found that the average cost of sheet asphalt was from $1.70 to $2.96 per square yard; wood block on concrete base, $2.72, while brick paving on concrete base ran from $1.60 to $2.50 per square yard and, when there was a gravel base used, it was as low as $1.25 per square yard. Blue stone curbing averaged from 55 to 85 cents per linear foot.

Ten cities used sheet asphalt, eight tried wood block in smaller or larger quantities, while all the rest used brick to pave their streets. Lebanon led with wood block, but even with this supremacy had but 2.2 miles.

In Lancaster and Reading the entire cost of paving is assumed by the city. The former has but seven miles of paved streets, while Reading has twenty-five miles and will add about five miles this summer.

Four of the cities, Allentown, Harrisburg, Williamsport and York, pay the cost of paving the street intersections and in front of non-assessable property. Bradford, Carbondale, Easton, Erie, Lebanon, Oil City, Wilkes-Barre and Franklin pay for the street intersections.

In Corry, DuBois, Hazleton, Monongahela City, Pittston and Titusville, one-third of the cost is paid by the city and the rest by the abutting property owners. Johnstown pays the same per cent., but also pays for the intersections.

In New Castle twenty per cent. of the total and the cost of intersections is paid by the city. In Altoona the entire cost, including intersections, is paid by the city.

The assessments in most instances are levied by the foot front rule, except in McKeesport and Franklin, where the cost is assessed according to benefits exclusively.

The cities using brick are Altoona, Beaver Falls, Bradford, Carbondale, Easton, Franklin, Connellsville, Corry, DuBois, Hazleton, Johnstown, Lancaster, McKeesport, Meadville, Monongahela City, New Castle, Oil City, Pittston and Williamsport.

Those that use brick and sheet asphalt are: Reading, Titusville and Wilkes-Barre. Allentown, Erie, Harrisburg and York are the only four using sheet asphalt exclusively. Chester has plastic paving and Lebanon, wood. Reading has about two miles of wood paving. While many blocks between the street car tracks are paved with wood, the majority of such paving, however, is brick.

The leading cities with brick paving figured on a mileage basis are: Altoona, forty-five miles; Johnstown, forty-two, McKeesport, thirty-five, New Castle, thirty, Oil City twenty-three; Reading, thirty-five and Wilkes-Barre, forty-six.

Philadelphia Bricklayers Ask Higher Scale

Four hundred members of the bricklayers' union of Philadelphia, Pa., have asked the contractors and builders of that city for seventy-five cents an hour. They are now receiving sixty-five cents an hour. J. W. O'Neil, president of the bricklayers' union, does not look for a strike, believing that after the employers have had a reasonable period of time in which to consider the increase, that an adjustment will be made.

Arabs Operate American Brickmaking Machines

Arab laborers are now successfully operating two American-made brickmaking machines in what is said to be the original site of the Garden of Eden, after complicated equipment manufactured in other countries proved its impracticability. In awarding a contract for a large quantity of brick to be used in a national undertaking, the Turkish government found the old hand method of making that product an exceedingly expensive one, and consequently set about to "lower costs."

Machines were imported from England, Germany and Belgium, but each, in turn, proved too complicated for the Arab laborer. Following the failure of these machines, two of the American-made type were installed and proved so simple that they were easily understood and operated by the laborers.

Those interested in the scheme to irrigate the Tigris-Euphrates valley were so pleased with these results that they placed their order for an American-made drain-tile machine.

A GLIMPSE *into a* POTTERY PLANT ACROSS *the* ATLANTIC

Making Large Jars, Bread Bowls and Flower Pots in a Yorkshire (England) Pottery

GOVERNMENT *and* BUSINESS

An Address Before the Associated Advertising Clubs of the World Calling Attention to the Changing Attitude on the Part of "Uncle Sam" Toward the Merchant and Manufacturer of Today

By Edward N. Hurley

Vice-Chairman of the Federal Trade Commission

CO-OPERATION and industrial preparedness are the most important questions before the business men of the country today.

The Associated Advertising Clubs of the World are doing their part in an unselfish, patriotic way to help improve and solve our many merchandising problems, which are related so vitally to the business strength and health of our nation.

But I question whether you gentlemen realize the great power you possess for improving conditions in our industrial life. While you have accomplished many things, your most important work is before you.

The country needs at this particular time the co-operation of a strong national organization with energy and good judgment, which has the entire confidence of the government, and of the banking and business world.

The Associated Advertising Clubs of the World have these qualifications and under the leadership of your capable and efficient president and executive committee you can do our country even a greater service in the future than you have done in the past. I regard it an *honor* to be invited to address your association.

GOVERNMENT AND BUSINESS

For several *decades* our government has worked out thru the Interstate Commerce Commission a constructive program for the railroads of the country. It has also made effective thru the Agricultural Department measures likewise helpful to the farmer. In these cases it has approached the problems in the spirit of co-operation and the results have been beneficial to all.

The government's attitude *toward business*, however, presents a contrast. The trouble has really been one of point of view. Government action has usually been negative; always scattered and seldom constructive.

SPIRIT OF AD. MAN IN UNCLE SAM'S BUSINESS

Little things very often are responsible for misunderstanding and may cause ill feeling when there is no substantial reason for it. Let me illustrate what I mean from the field of business activity with which you are familiar.

You sell merchandise by advertising and when you receive by mail a lead from your "ad" your letters in reply are written with great care to further interest your "prospect" in your product and if possible to close the sale. You *must* write letters *that pull* in order to make your advertising pay.

In contrast with your methods the United States government, which I understand transacts ninety per cent. of its business by mail, does not write letters *that pull.* Most of them are addressed as—*"Sir—You are hereby notified"* and the balance of the letter is generally couched in terms which put the recipient on the defensive and make helpful co-operation utterly impossible.

I have been informed that a few years ago in one of the departments at Washington, which comes in daily contact with the business men of the country, it was found that the word *please* was being used in telegrams. Instructions were given to *stop its use* and employes advised that if they should in the future use it in telegrams they, personally, would have to pay the expense.

This same department took the position that when the government acknowledged a letter from a business man that it was not necessary to say, "We thank you for your favor of blank date," on the theory that the government did not have to thank any one.

Gentlemen, is there any quicker way to separate friends or to force customers off of your books or to create a break between business men than to send out cold sarcastic letters? I honestly believe that much of the ill feeling that has existed between government and business for the past fifteen years has been caused by the discourteous letters that were written by the departments at Washington to business men.

If the government departments transacted business and wrote letters in the same *spirit you do;* if, in fact, each department at Washington had an advertising man who is accustomed to write letters *which really sell service,* government would become popular and the administration continuing this practice would increase its influence greatly—for giving service to the public in a courteous and civil manner.

There is, indeed, a better feeling between government and business today. The Federal Trade ommission is desirous of co-operating with *business* men and our efforts have demonstrated that it is *easy to have their hearty co-operation* if the proper co-operative spirit is shown by the government.

If the government continues to improve its methods of corresponding with the business men, tax payers, and others having dealings with it and in other ways to recognize the community of interest between it and business men, a much friendlier feeling will prevail and government and business will be united in a sympathetic effort to solve our great industrial and commercial problems.

TIME FOR CHANGE OF ATTITUDE

It is unfortunate that our business men and our government have been losing valuable time during the past fifteen years in trying to settle our economic and business problems, *not by co-operation,* not by any scientific method which will bring about results beneficial to *our people* as a whole, but by resorting *to the courts.* I know business has been sick, and business has undoubtedly been in a large measure to blame for its illness, but instead of sending *for a doctor* who could prescribe a remedy that would give practical and *permanent* relief, the government sent for lawyers *and you know the result.*

A wrong feeling has existed in this country as to the proper relations between government and business. Even when I went to Washington I had the feeling that business men did not want to co-operate with the government, but I learned very quickly that they are all eager to co-operate and willing to do everything in their power that the government desires.

We are talking a great deal these days about mobilizing our industries. We have been floundering about for many years with no definite plan; in fact, the first step has hardly been taken toward solving our industrial problems and *toward* attaining the result which we all know is absolutely necessary. Co-operation requires the interest and good will of both sides. Business men are anxious to co-operate with our government. It is now the duty of the government to lend its active constructive aid, *and it is the earnest desire of the Federal Trade Commission to do everything in its power to help foster American industries.*

TRADE COMMISSION AND DEFINITE STEPS FORWARD

The Federal Trade Commission is endeavoring today to work out a comprehensive, constructive solution of our business *problems.* We have taken definite steps toward getting at the real facts of industry from manufacturers. Within a few months we hope to be able to give manufacturers first-hand detailed information about their business.

BETTERING BUSINESS METHODS

The activities of trade associations and similar business organizations are manifold. Groups of associated business men that are putting forth special efforts to improve systems of cost accounting, bettering their processes of manufacture, standardizing their output, obtaining credit information, and endeavoring to advance the welfare of their employes, are bound to be most important factors in our country's development in the course of the next few years.

Special commendation should be given to associations that are endeavoring to build up industries in these constructive ways. Successful production and successful merchandising *require* many steps in the process of changing the form of the raw materials, and putting the product on the market at a figure adequate to cover the cost of production and the cost of selling and net some profit to the producer, without charging the consumer an excessive price; *and neither the individual manufacturer nor the government alone can* work out the *many* serious economic and business problems involved, so successfully, as can a group of associated producers or merchants, *laboring together in co-operation.* These associations, when conducted intelligently and rationally, with the thought of bringing about improved business conditions, will make it possible for our industries to compete in price and quality in the *markets* of the world.

There should be a greater degree of organization and of mutual helpfulness in all lines of trade and industry, so that American business may be welded into a commercial and industrial whole; the part of the Government being to co-operate with business men, *on request,* to bring about the results that will benefit business and hence promote our national welfare.

VIEWS OF PRESIDENT WILSON

President Wilson's views on trade associations may be of particular interest to you. In a letter addressed *to me,* under date of May 12, 1916, he said, in part:

The White House
Washington

May 12, 1916.

Your suggestion that trade associations, associations of retail and wholesale merchants, commercial clubs, boards of trade, manufacturers' associations, credit associations, and other similar organizations should be encouraged in every feasible way by the government seems to me a very wise one. To furnish them with data and comprehensive information in order that they may more easily accomplish the result that they are organized for is a proper and useful government function. These associations, when organized for the purpose of improving conditions in their particular industry, such as unifying cost accounting and bookkeeping methods, standardizing products and processes of manufacture, should meet with the approval of every man interested in the business progress of the country.

It is my hope that, in addition to the other work which the Federal Trade Commission is doing, it will ascertain the facts regarding conditions in our various industries. If it finds that an industry is not healthy, it should, after carefully considering the facts, in co-operation with the parties interested, suggest a practical and helpful remedy. In this way many of our difficult business problems might be solved.

I am anxious to see you continue to co-operate with the business men of the country along the lines upon which you are working.

Cordially and sincerely yours,
Woodrow Wilson.

DEVELOPMENT OF ADVERTISING

From the early days when the Town Crier and the signboard were the principal publicity agents employed, to the modern newspaper, poster and illustrated magazine with its pleasing presentation of current commodities, advertising has traveled a long way. Its evolution since the invention of printing has been rapid, and the field of advertising has expanded until it includes today widely varying lines of activity, as shown by the many departmental organizations included in your larger unit, the Associated Advertising Clubs of the World.

The work of your association deals with a part of the field of business which is most important—the marketing of commodities. Selling and advertising are bound up together. To find the need and to supply it are two sides of the same shield. The usefulness of a manufacturer to the community is greatly extended thru advertising. Merchandising has passed far beyond the confines of the old time market place. It now extends over whole continents—over the entire world, and it is advertising which makes possible national merchandising.

TRUTH IN ADVERTISING

Service to the community must be the ultimate test by which all advertising is judged. For that reason it is very gratifying to find your association taking a strong stand against fraudulent and misleading advertising. Its adoption of "Truth" as its world motto is an important step in insuring the public and the advertiser against deterioration of the service which the ad-man supplies. It means a substantial improvement in the reliability of publicity methods. It means a strengthening of business confidence in all advertising.

INTERESTED IN SUCCESSFUL MANUFACTURING

Every advertiser is interested in successful manufacturing, for only the successful manufacturer remains in business, to sell his goods, and to advertise. Whatever promotes manufacturing success, therefore, and business success in general, directly interests the advertising man.

Whatever makes for strong and substantial protection makes for progress in the field of marketing thru publicity. For this reason you are vitally concerned with conditions in the business world as a whole.

(*Continued on Page 65*)

AMONG *the* POTTERIES

The Brunt Tile and Porcelain Company of Columbus, Ohio, manufacturers of ceramic mosaic floor tile and porcelain for electrical purposes, has announced the fact that Chaseland, where the plant is located, is in need of more houses for the company's employes. "We need more houses here," the communication states. "There is not one empty house on Chaseland avenue. Quite a number of our help would like to live closer to the plant if houses could be obtained." The company has just closed a contract with the Columbus Railway, Power and Light Company to run a 13,000-volt line to the plant which will supply all departments with power. This line will be extended over a mile beyond where the power and light company lines now end. An electrical contractor is installing new motors and rewiring the plant to conform with the national and state board of fire underwriters' rules. Other important changes are being made to bring the plant up to the highest efficiency.

Plans for the new pottery that is to be built at Erwin, Tenn., by Edward J. Owen, until recently general manager of the Paden City (W. Va.) Pottery Company, are nearing completion and work on this new seven-kiln pottery is expected to be started within another month. This pottery will be the first whiteware plant to be built south of the Ohio River or in any southern state. While there are a number of potteries in the south, none manufacture general lines of dinnerware and staple specialties. This company will use native clays and its plant is closely situated to the Tennessee coal fields, which will insure the company cheap fuel. While the question of labor enters into the deal, it is believed there will be no trouble in procuring a sufficient force to operate the plant. There is little doubt but that a number of eastern Ohio and West Virginia pottery workers will take positions with the new company.

In order that the full capacity of its plant could be devoted to the manufacturing of semi-porcelain ware, the Thompson Pottery Company at East Liverpool, Ohio, has discontinued the manufacturing of yellow and Rockingham ware. This ware was fired in "top kilns" and these kilns are now being remodeled so as to accommodate a greater amount of whiteware. There is now only one plant in that district manufacturing yellow ware and that is the D. E. McNicol Pottery Company, which has a two-kiln plant in steady operation. Years ago, the yellow ware was the only kind made in the Upper Ohio Valley, but when the trade advanced, manufacturers devoted their attention to whiteware. The latter has practically eliminated the yellow ware, altho there is a heavy demand even now for yellow bowls, jugs, nappies and the like.

Business with general ware potteries in eastern Ohio and with the art potteries in the Muskingum Valley or at Zanesville, Ohio, continues exceptionally good. A shortage of help, both skilled and unskilled, is reported by most of the manufacturers. The art potteries are doing a heavy business. These manufacturers are creating new lines to take the place of the imported art lines, and the general ware manufacturers are presenting lines that exceed many of the imported dinner patterns. Should the workmen remain at their benches, continued activity in all potteries is assured during the balance of the year. Orders are plentiful; in fact, some manufacturers have sufficient business on file to work steadily for four months to come even if no more new business is received in the meantime.

On account of increased building construction, and growing activity among electric carriers, the vitreous porcelain business of this country is experiencing more prosperity than has been noted in years. Inquiries for special shapes for high tension work are very numerous, and those plants in the eastern Ohio territory are unusually active. In staple lines, such as cleats and tubes, these manufacturers are very busy, and in some shops more workers would be employed if it were possible to secure them. Buyers of these lines have been very active in placing their orders, and future requirements are said to be just as heavy as current orders. This condition insures continued activity in all electric porcelain plants.

Altho all of the manufacturers of vitrified hotel china have advanced their selling lists twenty per cent. since the last fall season, one manufacturer, on account of business conditions, has increased his selling list almost 33⅓ per cent. There has been no concerted movement among the manufacturers to ask more for their merchandise, each working out his own problem to the best advantage. Buyers, realizing that manufacturing costs have greatly increased, have offered no objection to the increased prices and, in many instances, have anticipated their requirements with the thought in mind that still further advances may be announced.

Four additional decorating kilns are to be built at the plant of the Knowles, Taylor and Knowles Pottery Company, East Liverpool, Ohio, as soon as contractors can start work. The demand for decorated ware is such that all potteries are taxed to the limit. In order that business might be taken care of more promptly, this one firm has planned an additional capacity. The Albright China Company at Carrollton, Ohio, is also erecting additional decorating kiln capacity, this work nearing completion.

From information coming from the Moulders' Union of Trenton, N. J., the strike that has been in progress in five potteries will soon be settled thru the activity of Assemblyman John E. Gill, representing the various plants involved, and a Philadelphia organizer working in conjunction with a special committee from the union in charge of the strike.

The Southern Potteries is the name of a newly incorporated company at Richmond, Va., having a maximum capital stock of $350,000 and a minimum of $1,000. The incorporators of this company are Edward C. Bailly, president, and Sherwood E. Hall, secretary.

Two Month's Paving Smashes Year's Record

Brick paving laid during January and February of this year in the state of Kansas, according to Harry Tidd, special agent of the Western Paving Brick Manufacturers' Association, has exceeded in volume all of the paving in that state during the entire year of 1915, and since the end of these two record-breaking months, paving-brick manufacturers in that territory are doing a very good business.

"There never has been so much paving laid in Kansas towns as during this year," said Mr. Tidd, "and most of it is brick."

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

GETTING RESULTS
FROM A LIMITED SPACE

WITH THE RAPID RISE of the business of selling face-brick it has come to be pretty well understood that it pays to show the product in as attractive a manner as possible. Time was when brick could be sold off the stack in the yard, or from a single specimen picked laboriously from a pile in the corner of the material dealer's office. But that time is now far in the past. Nowadays, there are few lines of business where more attention is given to artistic displays than in the face-brick trade, and few in which better effects are obtained, in spite of the apparent difficulty of making a good showing of a wide variety of materials.

BRICK AND BRAINS PRODUCE GOOD DISPLAY

The recently completed display rooms of the Pursell-Grand Company, Cincinnati, Ohio, form a case in point. They illustrate admirably not only what can be done with brick and brains in showing off the goods to the best possible advantage, but the possibilities of a relatively limited space in this respect. It is not to be taken from this that the company's rooms are small, because the display room proper is one of the largest in that city, measuring nearly fifty feet long by eighteen feet wide. But in view of the fact that the company handles the lines of twenty-eight manufacturers, and has to display something like a hundred varieties of brick, it can be appreciated that the demand made for space for this purpose in an up-to-date office structure in the heart of the city is somewhat difficult to handle.

EXHIBIT TURNED INTO A RECEPTION ROOM

The problem has been happily solved, however, by turning the display room into a reception room, leading to the offices of the company on the inside, instead of attempting to have a separate room for this purpose and another in which to display the brick. In fact, aside from giving the best use of the available space, this plan has also the added advantages of bringing all visitors, including possible buyers, right into the middle of the brick display, and giving an undeniably attractive impression of the material.

MUCH WORK PUT ON INNER OFFICE ENTRANCE

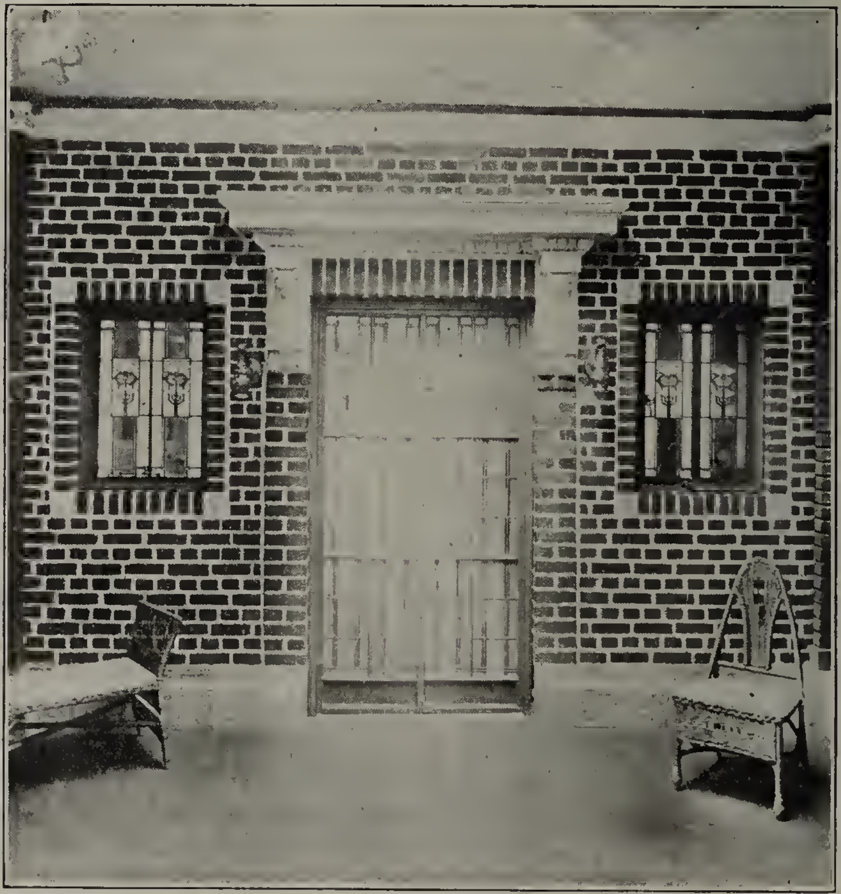
For instance, upon entering the outside door one looks straight ahead to the entrance of the inner office, which is treated in a manner to bring out the artistic possibilities of brick. The door is framed on the top in a cream-colored terra cotta, manufactured by the Midland Terra Cotta Company, in a pure colonial model, and is flanked on either side by a small stained-glass window, the whole looking very much like an attractive bungalow entrance. The brick used around this door are of the rough-textured type in mingled shades, set in a pure white mortar with a half-inch joint, a row of headers alternating with a row of stretchers. About fifteen feet of wall space are devoted to this very impressing entrance and, as it is the first thing seen by those who enter the office, the space could not have been used to better advantage.

On either side of the central section, which is fronted by the entrance, is a low garden-wall effect, with open doorways leading to the two ends of the display room. These walls are surrounded with a cream-colored terra cotta coping, matching the door frame referred to above. Handsome flower bowls of the same material, and of considerable size, are placed on each gate post. It should be said, also, that the front entrance proper is bricked at each side, with an archway above, finished with a white pergola effect which is carried out all around the room, adding to the ever-popular bungalow impression which is the dominating note of the whole display.

TEN THOUSAND BRICK IN DISPLAY

The one hundred odd varieties of brick referred to above are shown in the two end sections of the display room in every possible bond and joint, about 10,000 brick being laid up in mortar on a terra cotta base imitating gray granite. The usual panel predominates, of course, but sufficient space is available to enable a varied display of the bricklayer's art, and to give the prospective builder an excellent idea of the appearance of all of the different kinds and colors of brick handled, as they would look in the wall.

The location of the offices, on the top floor of the



Cream-colored Terra Cotta and Brick Combine to Produce This Beautiful Entrance Effect

twelve-story Mercantile Library building, is particularly fortunate, as the display room has the advantage of excellent lighting from the skylight, which, however, is not directly visible from within, its light being let in thru an equivalent space containing metal-framed art glass. The four private offices within are lighted by windows looking on the street.

The Pursell-Grand Company was organized by Walter Pursell, its president, about seven years ago, succeeding Walter Pursell and Company. At that time Mr. Pursell took with him E. F. Grand, a well-known building material retailer, and the company has since become the largest dealer in face-brick in Cincinnati. It handles a variety of other building materials, of course, including terra cotta made by the Midland Terra Cotta Company, but brick is its most important product.

Mr. Pursell is a Cincinnatian by birth. He received his education in Cincinnati, studying mechanical engineering at the Oho Mechanics' Institute and the University of Cincinnati. He was for a time a salesman with the Cincinnati branch of the Pittsburgh Plate Glass Company, subsequently organizing the firm of Walter Pursell and Company to handle brick and other building materials, and in June, 1908, incorporating the Pursell-Grand Company, with himself as president and Mr. Grand as secretary. The company has always taken an active part in the "boosting" of brick as a building material, advertising extensively and consistently.

This publicity has not only brought its reward in leadership in volume of business, and consequently a larger patronage, but has also established the friendship of the other concerns in the trade in Cincinnati.

The Excellent Lighting Arrangement Is Easily a Feature of This Display Room. The Light, Coming from Skylights in the Roof, Brightens Up Every Panel, Showing It Off to the Best Advantage

SPICY SUGGESTIONS *for the* SALESMANAGER

There is a building supply dealer in a certain southern town who is saying unpleasant things to himself because he has discovered that he has unnecessarily deprived himself of what might have been a neat addition to his profits. The only reason he did not get the additional "wad," he states, is because he was *afraid* that a large contractor on a certain job would be able to "beat" his price at some other point. Inasmuch as this dealer wanted to be sure of the business, he tried to comfort himself with the usual reasons for not holding to the regular price.

He had supplied the terra cotta facing for the original part of a building that had been erected in his town, and when an annex was projected, he naturally went after it "with both feet." The first job had been furnished in a most satisfactory way and the annex would be finished with a terra cotta identical in color and finish of glaze. Some of the old shop drawings and molds could be used in filling the second order. This dealer soon found, however, that he was not alone in seeking this business. Competitors were out in force, and so he made a price that was as close as he could figure it.

The time came when the order would be placed. But it did not come. The dealer got anxious and went over his figures again, thinking that he might be able to "chop" something off somewhere. But he decided that he had trimmed his profits as closely as he dared, and so he held his breath and waited.

In the meantime, if he had known it, the contractor was "shopping" all over the country in a vain effort to find a better price. Manufacturing costs had advanced since the first order was filled, and so the builder thought he was being gouged from the prices which he had received. At length, however, the dealer, about whom this pitiful tale is written, received the order which he transmitted to the factory with what satisfaction he could muster.

A few days later he met the contractor in a casual way and the latter, having nothing more upon which to ask bids, told him with glee that his price was very much lower than any he (the contractor) could get from other dealers or manufacturers anywhere.

Now the dealer is thinking of the automobile that the lost profit might have purchased for him, and has made up his mind that, hereafter, he is going to keep his nerve to the end and put in a bid that will insure him a profit such as he is entitled to, or let someone else get the business at starvation prices.

Help Customers Make a "Good Buy"

The brick salesman usually finds the artistic sense of a customer a good line of attack when he discovers that his prospect has some appreciation of the aesthetic, for he can talk of the beauties of brick as a building material, together with the various textures, bonds and mortar joints that contribute to the making of a handsome piece of work. But he is bound to encounter a proportion of those who are in the market for brick who need more or less guiding in order to save them from buying something that will not be at all suited to the size and type of the structure which they are building.

The first duty of the salesman, of course, is to sell brick and it would not be desirable nor practical for him to undertake to censor the artistic qualities of his customers' plans. Still he will often find it to his interest and that of his prospect to offer suggestions whereby the plans might be improved, insofar as the use of brick is concerned. This is especially true where the customer has only a small job to construct. The large builder usually has the benefit of the architect's expert opinion, but many of those who buy brick in small quantities employ contractors who may be good workmen, but they are not architects, and so the chances of the prospective builder's getting something that is not at all suitable are very good.

It is the dealer's business to sell the customer what he wants, undoubtedly, but it is also to his interest to sell something that the customer will be glad he bought after the transaction has been closed and the brick are in place. That is where it becomes important that he help the customer who needs help. The dealer should not, for instance, allow the customer to make the mistake that is often made by amateur porch builders, of putting up unduly heavy columns. He should, on the other hand, make sure that the buyer understands the desirability of a porch that will harmonize with the rest of the house. He ought to be sure that tile is not used where brick would be more suitable, or vice versa. The reason for this is that if, after the work is finished, the customer finds that the material is wrong—and he surely will—there is a tendency to blame the man who sold him the brick. Then for his next order, or his neighbor's, either or both will go elsewhere.

A Use for Drain Tile in the City

Ordinarily, the drain-tile manufacturer or the dealer does not consider that there is a market in the city or town for his product that is worth while cultivating. Keeping in mind the usual uses to which this material is put, probably he has not. Such draining of the soil as is essential has undoubtedly been done, and besides the grades in the cities and towns are designed to carry the water off from the surface. Sales at these points, therefore, will necessarily be for incidental purposes.

However, a suggestion came to the writer a short time ago, which he gladly passes on to all who would make use of it. A small park, or playground, was recently started in a Middle West town, the plantings including a large number of trees which would in time grow to be large trees but which were at the outset struggling for existence. In order to make the park as presentable as possible, the entire surface had been sodded, with the result that the rain which fell reached the roots of the new trees only in small quantities, when at all, while during dry periods they suffered for water. The caretaker had a hose but found that even a most thoro wetting did not appear to meet the needs of the trees.

Finally, he went to a local building material dealer and ordered as many lengths of six-inch drain-tile as he had trees. Then he borrowed a post hole augur of similar size and bored a hole near each tree in which to place the tile upright. He inserted the tile with the tops flush with the surface of the ground and provided wooden caps to keep them from being filled up with dirt and debris.

Now, when he sprinkles the grass on the park lawn, he tips the caps off of the tile and fills them with water until they will hold no more. As a result these trees are flourishing because the tile permits the water to get below the sod.

Similar suggestions are made from time to time in the magazines which amateur gardeners and foresters read, involving new uses for clay products. If the retailer of these materials would utilize a few idle moments in looking up individuals who need and who would use tile for the same purpose—or better, advertise it—they might be fairly certain of starting something that would lead to profitable business.

A Ruse to Promote Flower Box Business

Resting on the sill of the principal window in a brick display room of a retailer which the writer visited recently, was a flower box resting on two supports. The box was of good proportions, classic in lines and had been made in a mold of attractive design. The metal pans which fitted into it were filled with healthy ferns and the whole room benefited from its presence. It was a very attractive fixture among the furnishings of that display room. The box itself happened to be made of plaster of paris, the dealer being in a position to supply them to customers who happened to order them. This, however, was incidental, for the purpose was to set the box in the room for decorative purposes.

The way it works out, however, is to bring up the subject of flower boxes whenever a customer comes in to see samples of brick. Then the dealer has an opportunity to urge a terra cotta box which can be supplied to order for any requirements and which he is always glad to figure on.

Or the dealer can discuss the matter of providing window boxes when the house is built and demonstrate the manner in which the ledges for such boxes, if not the boxes themselves, can be formed in the wall by corbelling out the brick as the wall rises. The matter of window boxes is one that the average prospective home builder does not consider or think of, and where it is brought to his attention and provision is made for the boxes, the result is usually a house in which the owner is more pleased than he would otherwise have been.

Bring Your Illustrations Home

A brick salesman was discussing with a prospective customer the fire-resisting qualities of brick and undertook to strengthen his statements by citing tests that had been made and conspicuous examples of how brick walls had prevented fires from spreading. He recited a case of a then recent fire in New York and showed the prospect a picture of the manner in which various kinds of walls had withstood fire. But he saw that he was not getting very far on these tactics. The customer admitted that the pictures looked all right but that he would like to see the walls.

Just then a new idea struck the salesman.

"Have you been down on ———— street in the last two or three days?" asked the salesman.

The prospect had.

"You noticed the wreck of the Climax Paint and Varnish building, didn't you?" he went on.

"Yes."

"Did you examine those walls?"

"No."

"Well," said the salesman, "if you want a real demonstration of the fire-resisting qualities of a brick wall, you go down and take a look at what is left of the building. Any fireman will tell you there never has been a hotter fire in this town than arose from that paint plant. There was a big stock of oils on every floor, from the basement up, and the wood in the floors had been oil-soaked for forty years. There is nothing left of the building but the four walls, you have probably noticed. Yet, the fire did not spread to the wholesale paper house on the east side nor to the wholesale seed house on the west, and you don't have to be told that both of these stocks take fire very easily. Brick walls only twelve inches thick over a large part of that side wall area saved the situation. They got warm, naturally, but they held the fire at the point of origin, with the assistance of the firemen who kept it from spreading over the tops of the walls."

Then the salesman convinced his prospect and shortly afterward converted him into a customer. The point of this story is that when you want an effective and concise example take one near home. It will provide you with the hardest "punch."

LITTLE SAVINGS

in the BUSINESS OFFICE

Small Leaks That Can Be Stopped by a Little Attention on the Part of the Clay Plant Owner, the Dealer, or Their Office Managers

By Robert F. Salade

AS Poor Richard says, "Beware of little expenses; a small leak will sink a great ship." The majority of us are forgetful over the "little expenses," and we hesitate to save in small matters, yet it is trivial waste that soon amounts to great loss. With this thought in mind, the writer wishes to point out a few of the "small leaks" which can readily be found in the average business office.

HAD TROUBLE WITH RUBBER BANDS BREAKING

In the business offices of a well known manufacturing concern a large number of rubber bands were used for various purposes during the course of a year. Many of the bands, it was noticed, would break in handling, and at first this fault was thought to result from an inferior quality of rubber. New supplies were then bought from other dealers, but the same difficulty prevailed—a certain number of the rubber bands would lose their elasticity after the stock had been on hand for a few weeks.

Of course, the quality of all office supplies for this firm was tested as soon as new goods arrived in the stockroom, and on account of having so much trouble with the rubber bands, these were given severe try-outs whenever a new lot came. The boxes were opened, and bands from top, center and bottom were taken out and stretched to their full capacity, but in all cases when the bands were new, their elastic quality was found to be excellent. But, a few weeks later the bands would snap and break very readily.

THE "MYSTERY" SOLVED

One day the general manager happened to visit the stockroom, and his "eagle eye" saw that *uncovered* boxes of the rubber bands were kept upon a shelf which adjoined a section of hot steam pipes (the time being winter). After questioning the stockkeeper, the general manager learned that the bands had been kept in the place mentioned for several years. The stock man discarded the lids of boxes as new stock arrived, keeping the bands loose and uncovered for the sake of convenience. For several months of a year the rubber material was subject to excessive heat from the steam pipes. This is what took the "life" out of the bands, causing them to break.

A fresh lot of the bands was ordered, and the boxes holding them were placed in a cool, dry place in the storeroom, the boxes now being tightly covered. No further trouble was experienced with this material after that. Tests were made after some of the bands had been stored in their new position for more than a year, and they were found to be in the best of condition.

A CASE WHERE INK WAS LOST

Here is another peculiar case of loss: There were about twenty sub-offices in the main department of a large firm. In these sub-offices there were close to fifty individual desks. The equipment of each desk included black and red writing inks, each in ordinary glass ink wells covered by loose glass lids. Every morning a porter would visit the offices, and among other duties, he would re-fill all of the black and red ink wells. Some, of course, would require but little additional fluid, but the system was to keep each well filled almost to capacity.

RED INK DISAPPEARED FASTER THAN BLACK

Practically every morning it was noticed that the red ink needed a little replenishing in all of the wells, while in numerous instances no additional supply of black ink was essential. Later, it was learned that in some of the sub-offices none of the red ink was being used for long periods, as only certain work called for the use of the crimson fluid, and yet it had been disappearing every day just the same. The loss was caused by *evaporation*. The chemical properties of red ink are such that it will evaporate rapidly unless its containers are tightly stoppered.

STOPPERED BOTTLES SOLVED THE PROBLEM

Now in the offices referred to, the ink wells were covered by *loose* glass caps, and most of the time these caps were off. Often, the wells would remain open over night, and meanwhile a certain portion of the red ink was turning into "thin air." The remedy was simple: All of the scarlet writing fluid was transferred to small individual bottles, containing rubber stoppers, and these vessels took the place of the open wells on the desks. Instructions were given to all in the offices to form the habit of keeping the red ink bottles corked. This was easy to do, as the crimson liquid was used only occasionally. Consider the amount of ink saved by this little act of economy during the course of a year.

WHY LARGE ENVELOPES ARE BETTER THAN SMALL

Why is it that so many large firms are using No. 9 or 10 envelopes exclusively for business correspondence instead of the No. 6 or 6½ sizes? Mainly because the larger size containers are big time savers, and in addition, they will hold more material. For inserting in No. 9 or 10 envelopes standard size letterheads, office forms and blanks necessitate only two folds, while short letter-sheets require only one fold. Obviously, more folding would be necessary to insert letters and blanks in the smaller size envelopes, and excessive folding often makes the correspondence matter unhandy as well as unsightly to the recipient. This is something important to consider. Because of the advantages mentioned the No. 9 or 10 envelopes are more economical than the No. 6 or 6½.

INDEXED SCRAP BOOK FOR CLIPPINGS

In many offices part of the detail work consists of clipping newspaper advertisements, market quotations and stock reports from the daily papers. It is the custom in most places to keep these clippings on file for reference, and often it is difficult to locate the desired item immediately. Some firms are using indexed scrap books for the purpose. The clippings are pasted on the indexed pages, and are listed in the index section. Market prices for brick for July 1, 1916, for instance, would be found on page 234 of the scrap book, and so on. Thru this simple system any clipping wanted can be located at a glance. The scrap books are a standard article, strong and neatly bound, and they may be bought at any first grade stationery store for about $1.30 each. A couple of these books should form a part of the equipment of every office. Every business firm does a certain amount of newspaper or magazine advertising and, as copies of all ads. should be saved for reference, the books would be especially useful for that purpose.

LARGE CORPORATION SAVES WRAPPING PAPER

Economy in "little things" is even practiced by a well-known corporation capitalized at $15,000,000. In the business offices of this company many packages, cases and boxes, containing printed and advertising matter, office equipment and supplies are being received continually. Frequently, the packages involve several large sheets of heavy wrapping paper and "hanks" of good cord or twine. Whenever it is possible to save such material, without much time being required to unwrap it, the boys do so. Instead of ruthlessly slashing away with a knife, a minute is spent in unloosening bindings, and all good wrapping paper and rope is saved, and at intervals is sent to the shipping department of the factory where it is used over again.

To one who has never been connected with a large business office of a manufacturing concern, it would no doubt prove astonishing to learn what a great amount of heavy wrapping paper, cord, corrugated pasteboard, and boxes can be saved from incoming materials during a few months. All of such things which are worth preserving are put in a corner of the stockroom, and about once a month one of the firm's wagons takes the accumulation to the factory for re-use.

This corporation is also very economical in the matter of scratch pads, hundreds of which are used in the various sub-offices as well as in the main office during the course of a year. With a large company of this class there is often a lot of printed matter being discarded, such as form letters of old date, circulars, price lists and factory forms. Changes in the reading matter have made this material worthless so far as its general utility is concerned. Of course, most of it has been printed only on one side, and is of bond, linen or writing paper.

USED STATIONERY MADE INTO SCRATCH PADS

On occasions, this discarded printed matter is collected, and sent over to the factory where desirable sections of it are cut up into convenient sizes, and made into pads of about one hundred sheets each. One side of these sheets is clear of printing, and is good enough to write upon for private office purposes.

Certainly, this firm is not "stingy" by any means. It is exercising real economy, and eliminating waste and, for this, it deserves due credit. Says Poor Richard again, "If you would be wealthy, think of saving as well as of getting."

The MISSION *of the* ARCHITECT

Definition: **Architect:** The pilot of the charted, but dangerous waters of building.

Now, friend, when a little ship or a big ship, manned by skilled mariners and able seamen, comes to port, she stops outside the bar for a pilot to take her into the harbor. Not because he knows how to handle the ship any better than the crew but because he knows his business—the safe way into the port—and mariners of the deep do not.

The shoals, reefs, tides and currents of the building game are just as dangerous, financially, and far more numerous than those of any harbor in existence. And even if the voyager is not in any danger of his life, his other troubles will probably cause him to regret the lack of this risk.

Just as the pilot guides the ship and its crew to a safe anchorage, so the contractor guided and assisted by the architect carries the builder's plans to a happy consummation, piloting them safely thru the many dangers that beset all unguided builders.

In the first place the architect gives individuality to your house, however simple, and assures correctness of form and detail, that only education and experience can give.

If you have ideas of your own, he expresses them for you, blends and harmonizes them into the style that best suits them and adapts them to the surroundings and also your pocket.

And you, Mr. Real Estate Dealer, suppose you can say to your (wished) customer: "This house was planned and the building supervised by our architect, Mr. Putemupski, absolutely original—no stock stuff—latest conveniences—true Eugegian Style * * *" Outside the looks, some talking point, eh?

Now suppose you know just what you want (a house just like Mr. Nexdo Nabor's). Can you put it on paper in such a form that you can get competitive bids, based on the same plans, workmanship and material? Do you know the size of the timbers necessary to keep the house from falling upon your head? The proper kind of material? Can you put it on paper in such a manner as to be bond proof—and that's a heap stronger than bomb proof. Nix. You can't do it. It takes years of hard study and years of experience to make a pilot, whether to the channel of a great port or to safe anchorage in the Harbor of Happy Homes.

Now there are some "guys" wise enough to get a book of the best plans of the greatest architects (that's what the fellow who sold you said) and they choose their plans from them. Well, these plans are—if an architect ever saw them—a job lot, that either wouldn't sell at all or have been sold too often, out of date, and sold in a bunch to save having to pay the janitor extra for burning. Don't you know that if they were any good that they would cost you what an architect's plans would and not be sold for thirty cents a gross? But if you are willing to use them, you are not man enough to tell what you are paying for, and if you draw your own contract you are liable to leave out such items as a roof, lighting, bath tubs, or other similar unimportant details.

No, don't try to beat another man at his own game. The chances are that you won't win. The architect can be had for a small fee, which he earns in the increased beauty and utility of your building; in insuring the use of proper materials and construction; in the relief to you from worry; in the protection from loss thru incompetence, fraud or carelessness; in the increased value of your property, and which fee he saves many times to you by his knowledge of all the economies in construction and by securing competitive bids on the same plans and specifications to pilot you thru that troubled and dangerous water that borders the Sea of Dreams into the calm waters of the Harbor of Realization.—*W. Elliott Dunwody, Jr., in the "Industrial Index."*

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Some Interesting Figures on Slack Belts

We often read about slack belts and their advantage over tight belts, but we seldom see real figures relating to such belts aside from the increased arcs of contact.

The accompanying sketch shows how the arc of contact increases with slackness. In some cases the writer has known the increase to amount to over thirty per cent., which is considerable, and is one of the reasons why a slack belt pulls so well.

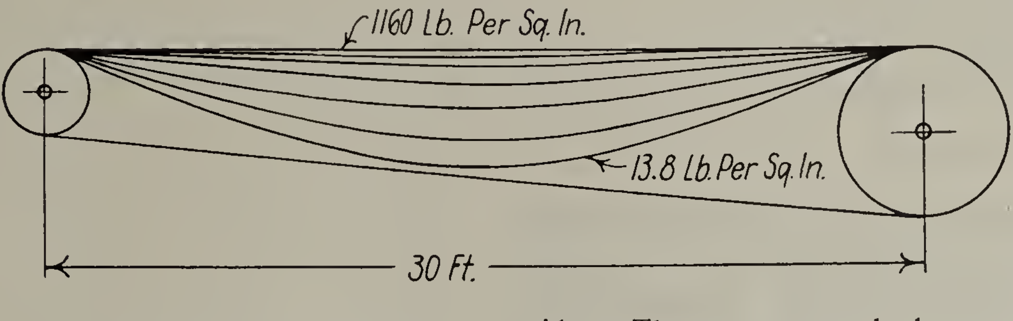
The question that remains unanswered is: What change in initial belt tension occurs with the increase of contact? Is that change worthy of consideration?

In the sketch is shown a drive that has common, everyday dimensions—thirty feet between shaft centers; a three-foot pulley driving a six-foot pulley; a belt that is one square inch in section (equivalent to a single-ply leather belt 4½ inches wide); and with the sag varying all the way from one-half inch to four feet.

The enormous change in belt tension is interesting and instructive, as follows:

Sag in Inches	Corresponding tension due to weight of belt, lbs. per square inch.
½	1160
1	580
2	290
3	193
4	145
6	97
12	49
24	25
36	17.4
48	13.8

As a little study of the figures will indicate, the tension varies inversely as the sag in an almost exact proportion, that is 1160 ÷2=580; 580÷2=290; 290÷2=145 (see four-inch sag); 145÷6=24⅙ (see twenty-four inch sag); and so on.



A USEFUL FORMULA

The formula used for solving any tension for any sag; any material (steel cables, electric cables or wires, ropes, suspension bridges, belts, etc.); and with any distance between points of attachment is.

$$\frac{PL^2}{8D}+PD=\text{tension, lbs. per square inch;}$$

where P=weight of the material under consideration one foot long and one square inch in section. (For leather such as used in belts P=0.43, the value used in obtaining the above figures);
L=length of span in feet;
D=sag, measured in feet.

It is hoped that this formula will prove useful to readers in connection with problems of rope and belt drives.

Just off hand, the writer would say that 1,160 pounds is too high an intital tension for a 4½-inch belt. You will say so yourself when you figure that it means over 250 pounds pull per inch width of belt, whereas, we generally figure a useful pull of only forty or fifty pounds per inch of width for the sake of safety—to keep the belt from slipping. So why in the name of common sense should we permit a tension of 250 pounds per inch of width on the slack side in order to get 300 pounds tension on the tight side? The useful pull then is

300 lbs. minus 250 lbs.=50 lbs.

Traveling at a speed of eight hundred feet per minute each inch in width, therefore, transmits

$$\frac{50\times 800}{33{,}000}=1.2 \text{ horsepower.}$$

NO EXAGGERATION

Do you get the drift of the argument? You will immediately see that these figures concerning a common drive are not at all exaggerated when you recall the well-known belt rule: "One inch width of single belt running 800 feet per minute will transmit one horsepower." A generous allowance in the above calculations has been made in figuring that one inch will transmit 1.2 horsepower.

Five hundred and eighty pounds initial tension is too much also, and 290 and 193. Why not permit twenty-four inches sag and reduce the tension to twenty-five pounds? If it can be done without belt slip, we say, do it.

Many a drive is operating successfully today with that much sag, and without slip. In fact, the writer knows of an installation where a sixteen-inch belt is transmitting 300 horsepower at a belt speed of 2340 feet per minute. The tension per inch of width is 265 pounds and yet, the belt sags thirty inches. If this belt were pulled up tight, figure for yourself how the useful strength of the belt might be wasted.

BEARING REACTION

Besides, there is the bearing friction to consider. The common method nowadays, in putting on a belt, is to make a guess as to the amount of belt to be sliced off, take one inch or more for good measure and then force the belt onto the pulleys, tight as a fiddle string. We then get enormously high tensions—much higher than we think.

According to the rule of thumb given above, we can allow 185 pounds useful pull on our 4½-inch single belt, indicated in the sketch.

With a tension of 1160 pounds on the slack side, we must, therefore, have (1160 plus 185) 1345 pounds pull on the tight side.

The total pull, then, on each shaft must be at least (1160 plus 1345) 2505 pounds, which, expressing it mildly, is enormous.

On the other hand, with a sag of two feet, the tension

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on the slack side is only twenty-five pounds and on the tight side it is (25 plus 185) 210 pounds. In this case the total pull on each shaft is (25 plus 210) 235 pounds, and just as much or more work is being done.

HIGH TRANSMISSION EFFICIENCY

We now see why there is such a difference in transmission efficiency. The friction of the slack belt bearings is less than ten per cent. of the tight belt bearing friction. 235÷2505=9.4 per cent. Isn't that worth while?

If you wish to figure the power consumption of your bearings due to tight belts only, here is a fair formula:

$$\text{Horsepower lost in journal bearings as ordinarily fitted and well lubricated} = \frac{.000367\ d\,W\,N}{33000}$$

where d=diameter of shaft in inches;
W=total belt pull or load on bearings in pounds;
N=revolutions per minute.

LONG LIFE

After weighing all of these things one cannot help being impressed with the utter folly of intensely tight belts, especially since they are so unnecessary.

Imagine the much longer life of a belt stressed only 210 pounds as compared with being stressed 1345 pounds. "Unreasonable," you may say. "If a belt can endure a pull of 1345 pounds without breaking prematurely, it should be made to pull its full strength all the time."

Well, there is some logic in that, too, and rather than buy new and larger belts in installation that are being enlarged, we would recommend increasing the stress in slack belts so long as they pull easily without slip. It may be even a good plan to install an idler pulley to prevent slip in extreme cases.

All these points tend to prove the advantages of the slack belt. You can usually add more load on them. Tight belts, however, cannot be overloaded.—*Copyright* 1916, *by W. F. Schaphorst.*

A Blower as a Means of Increasing Power

Engineers in brick plants who are desirous of advancement are always keen to know the latest and best in the way of methods or equipment designed to raise the plant to a higher level of efficiency. Most of us, of course, are always on the lookout for advancement, and so it might be well to say a word or two about blowers and their present rate of adoption in the power plant field. This piece of equipment is being used more and more with each passing day for inducing draft in boiler furnaces or for increasing such drafts and, thereby, raising the steaming capacity of the boilers.

A new blower does not cost very much and thereon hangs the great advantage. A boiler usually costs a great deal in comparison. Therefore, when it is shown that an inexpensive blower can be made to take the place of a new and expensive boiler, the owner, superintendent or manager usually sits up immediately and takes notice. It is a fact that that a blower has often been the cause of a boiler doing twice as much work as under ordinary conditions. Sometimes boilers have been able to triple their rated capacity with the aid of a blower.

Another point, without a blower it is necessary to have a large and expensive chimney. The blower eliminates that expense entirely in new plants, and, where the capacity is to be increased, the blower makes a larger or additional stack unnecessary. With blowers it is only necessary to install a pipe large enough and high enough to carry the smoke and gases up out of the danger zone, and that is enough. A small steel stack or the present stack would suffice very well.

Another saving soon makes itself manifest with a blower in the quality of fuel that may be burned. A blower will force the air thru coal that natural draft will not penetrate at all. With natural draft it is usually necessary to burn the high grade and, therefore, more expensive coals because of the difficulty of furnishing air properly.

The installation of a blower, however, should not be made off-hand and without investigation. A manufacturer's engineer should be consulted, and don't write to one manufacturer of this equipment only. Write to several and get the combined opinion of them all before taking any action. Or put the matter entirely in the hands of a good consulting engineer. If your boiler is now operating at rated capacity only on natural draft and you are in need of more power, you will find it well worth your while to install a blower or several of them.

The aim of all clay products manufacturers should always be—maximum output per dollar invested. Quality must be considered as well as quantity. No two conditions are ever alike. Hence, the importance of thinking it over before acting.—*N. G. Near.*

Heat Value of Fuels

Kind of Fuel	Heat Units Per lb.	Relative Values	Lb. of Water Evaporated Per lb.
Carbon, Pure	14,500	1.000	15.00
Hydrogen	62,500	4.280	62.75
Marsh gas	26,415	1.816	26.68
Olefiant gas	21,328	1.466	21.54
Coal, anthracite	14,833	1.020	14.98
Coal, bituminous	14,796	1.017	14.95
Coal, lignite dry	10,150	0.7	10.35
Peat, kiln dried	10,150	0.7	10.25
Peat, air dried	7,650	0.526	7.73
Wood, kiln dried	8,029	0.551	8.10
Wood, air dried	6,385	0.439	6.45
Charcoal	13,500	0.93	14.00
Coke	13,620	0.94	14.00
Petroleum, W. Va	18,300	1.255	18.80
Petroleum, Pa.	18,050	1.24	18.60
Petroleum, Ohio	18,450	1.27	19.05
Petroleum, Asia	18,000	1.24	18.60
Petroleum, Europe	18,000	1.24	18.60
Animal fat	9,000	0.65	9.30

—*From "Power."*

Prominent Canadian Heads New Concern

The Milton Pressed Brick Company, a newly incorporated concern of Milton, Ont., having a capital stock of $1,500,000, has absorbed the plants of the Toronto (Ont.) Pressed Brick and Terra Cotta Company and the Medina Shale Brick Company of Streetsville. The plant of the new company covers a 300-acre tract of land and has a daily capacity of 200,000 brick, made possible by the operation of eight brick machines. There are sixteen kilns on the plant together with a ten-tunnel drier. The equipment of the Toronto Pressed Brick and Terra Cotta Company consists of five dry-press machines and eight kilns, while that of the Medina Shale Brick Company includes two brick machines and three down-draft kilns.

The officers of the new company, formed on June 10, are John S. McCannell, president, and Frank R. McCannell, vice-president. The other directors are J. P. Stillwaugh, who will be in charge of the Streetsville plant; J. McBain, who will have charge of the Toronto office, and W. D. Lumis. C. B. Lewis is to have charge of the plant at Toronto.

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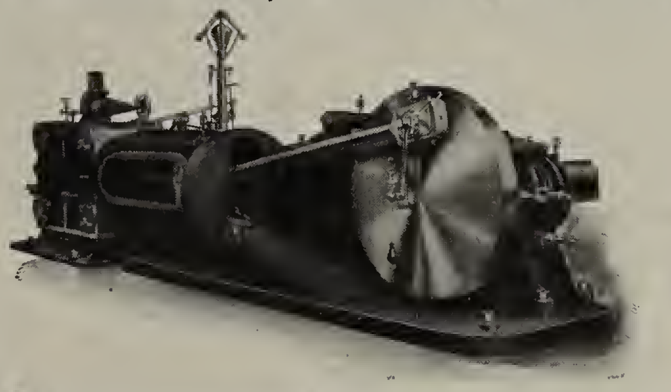

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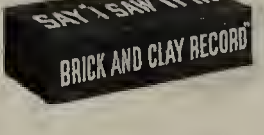

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Determining the Amount of Sand in Shale

783. *Illinois—Can you give me a short, practical test to determine the amount of sand or non-plastic material in a shale? The shale is being manufactured into paving-brick and varies considerably in plasticity from time to time. There is a sandy strata in the clay bank. We have no means of thoro mixing, except such mixing as is obtained in digging and loading by the steam shovel. What I want is a quick method of testing a sample of shale from the pugmill or brick machine for the per cent. of non-plastic material, or rather a fairly accurate comparison of two different samples in this respect. The rational analysis would serve the purpose but is too much work. We have tried screening out the sand with 100 mesh screen after deflocculating the clay substance by boiling in a caustic solution but this does not work because much fine sand goes thru the screen. Have you any suggestions?*

The following procedure, which while not as accurate as the rational analysis, can be made to give approximate results in a short time.

Grind a sample of shale so that it will pass thru a 100-mesh sieve. Weigh out five grams of this ground material, place in a small porcelain mortar with about 50 cubic centimeters of water and grind thoroly with a pestle, so that the clay will form a thin slip. At the same time about .05 gram of caustic soda should be added to the liquid. The grinding should be continued until the clay will pass thru the 150-mesh sieve. The clay suspension is then passed thru this sieve and poured into a narrow graduated 100 cubic centimeter glass cylinder, provided with a stopper. The clay-water mixture is then thoroly shaken, and the cylinder filled to the mark with the water used in rinsing out the porcelain mortar, which must be done in order to transfer all of the clay. The stoppered cylinder is then shaken vigorously for some minutes and then allowed to settle. The amount of granular material can be readily read off at the bottom of the cylinder by referring to the graduations on its side.

This test does not require much time and we believe can be made a useful one for the purpose in view. As a rule, the separation of the sandy and the clay material is quite sharp, so that there should be no confusion as to the relative amounts of the two kinds of material. The caustic soda addition is important as it will help in breaking down the clay-shale particles. The grinding is also very important and must not be neglected, as otherwise it will clearly be impossible to bring about the desired separation.

A Problem in Burning Up-Draft Kilns

777. *Mississippi—We use open top, up-draft kilns in burning our brick but so far have no way of telling when we are ready to close them out, except just to guess by counting from the time when we think we have reached what we call a burn-*

and ANSWERS

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Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

---

ing heat. We generally try to run five days and nights, holding as steady heat as possible after this burning heat is reached. Our brick do not settle at all and we would like, therefore, to find some way, if possible, whereby we could determine with some degree of certainty, the stages of heat in our burning and just when to close the kilns to get certain results.

It was suggested, in the June 6 issue, that the correspondent who sent in the above inquiry use one of two methods for determining when the finishing period is reached. One of these was to arrange the setting at certain points in the kiln so that trials could be drawn toward the end of the burn. The other was to look into the possibility of using pyrometric cones, so boxed in by the setting as to protect them from flame flashing.

Since the above question and answer appeared, however, another reader has written us, as follows:

"I have burned the kind of clay found in South Carolina, Florida, Mississippi and in Texas. It is impregnated with sulphate of iron and expands in burning.

"In up-draft kilns I set the brick forty-nine courses high, using platting of good brick that I can tighten as I see fit. I get my kiln uniformly heated to the proper point, which is when the sulphur shows on the platting. If you burn with wood, for instance pine, use very little draft; more draft if you use coal or oak wood. If necessary, use some loam on top of the kiln to hold your heat and distribute it equally.

"When the sulphur first shows between the platting brick you are just reaching your burning heat. The sulphur first shows yellow, and the heat should be increased until this sulphur shows a copper color. It requires a heavy flame to flux the iron. As long as the sulphur is yellow your brick are not burned as hard as they should be, and you will find a varied lot of colors thru the kiln, but when you get the copper color, which will require at least seventy-two hours, you will have good hard brick to the top of the kiln.

"A strong draft with wood on this character of clay will make brittle arch brick; at least, this has been my experience."

Desires Information on Burning with Gas

781. *Wisconsin—Have you a book on burning with natural gas, or can you tell me where I can get information as to how to make the connection with the kilns, and how to handle the gas in burning, watersmoking, and so forth?*

"Kilns and Kiln Building," written by A. B. Searle, an English ceramist, contains some information regarding the construction and operation of gas-fired kilns. The book is on sale thru "Brick and Clay Record's" Book Department the price being $1.25 postpaid.

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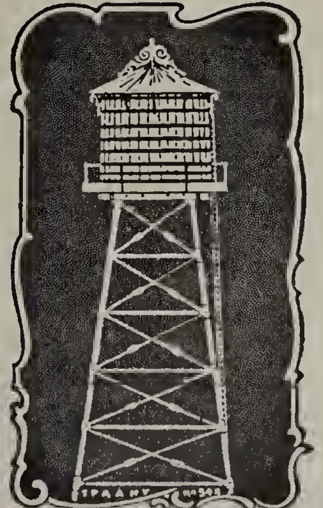

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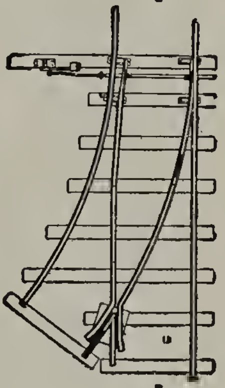


See Our List of Clayworking Books Page 4

be glad to furnish you, if you so desire. There you can secure all of the essential information regarding the installation of a gas burning system, also the best method to be followed in its operation.

The gas is usually delivered to the yard in a comparatively small pipe as it is under high pressure. The gas then passes thru a reducing valve or regulator which brings it down to the pressure required, say from eight ounces to one and one-half pounds per square inch or more. From this point the size of the piping is necessarily increased on account of the lower pressure. Usually four-inch pipe is used for distributing the gas around the yard, while from one to two-inch pipe is used to feed the burners. The flow of gas to the burner is governed by stop cocks or valves. The cost of most of the burners is very low; in fact, some superintendents make their own burners.

Insulating the Kiln Crown

786. *New Jersey—Will you kindly advise us of a suitable top covering for the crown of a kiln? We believe you have treated on this subject in one of your former editions; if so, will you kindly send us this information?*

We presume that the type of kiln which you have on your plant and for which you desire a suitable insulation, is a down-draft. If this is the case, we would suggest that the wall of the kiln be carried up from the base of the crown to within eighteen inches of the top and the space filled and tamped with fine burned out ashes. Where this is done a very good insulation will be secured. Over this filling a lagging of brick should be laid and this covered with a coating of lime-cement mortar. Burned out ashes, especially the light fluffy kind, make an excellent insulation and are generally procurable on a clay plant. Unburned carbon should always be removed from these ashes before using.

The Semi-Monthly Trade Review

WHILE THE TREND of activity in building thruout the country is still pursuing the upward course that has characterized 1916 as one of the most active of many years past, and the volume of sales of burned clay products entering into the construction of buildings is still unusually high, yet the labor element has again injected its troublesome presence into the industry in some of the larger centers and has succeeded in interfering with the progress of constructional work.

Especially is this true of New York, which territory has been the scene of one long succession of unhappy events, judging from the standpoint of the brickmaker and builder.

The brick manufacturers along the Hudson river and those in the Raritan river district have suffered decreased production during the past season due to a long siege of labor trouble that has impeded their work. This, coupled to the fact that for an appreciable period of time the building market of New York and vicinity has been rather slow as regards brick or other building materials because of unfavorable weather, has constituted a great bane to the progress of building in and around America's largest city.

NEW YORK BUILDING HELD UP BY STRIKE

After successfully effecting a settlement with labor on the brick plants, and enjoying a period of favorable weather in which to resume operations, the tide of building activity was again held in abeyance for almost a week in the New York district by a strike of bricklayers' helpers, during the past fortnight. A settlement has again been brought about and conditions are well on their way to normal.

Clay products dealers in New York handling such materials as flue linings, clay conduits, copings, drain-tile and sewer-pipe, expect to report new quotations during the early part of July by a change in discounts, which will make a slight advance over present prices.

In the building line, much the same discouraging situation is reported out of Boston as is found in New York. Here building has come almost to a standstill due to labor difficulties. This, of course, materially effects the sale of brick and other clay products in and around that center. Previously, a great deal has been said regarding the high cost of materials as being the chief cause of delayed operations, but that contention is no longer being maintained, in view of the fact that the only obstructing element of the present time is that of labor.

SOUTH ATLANTIC CLAY PLANTS BUSY

If reports from Baltimore, Md., are to be taken as indicative of general building activity thruout the South Atlantic states, conditions may be said to be very good in that section. This point is the source of a very optimistic report regarding the building situation, which reflects a continued expansion of operations. Clay plants in that territory are kept exceedingly busy and all indications point to a continuance of active operations for some time.

This seems also to be true of the Southern states where the weather conditions have been favorable to building and, as a consequence, very rapid progress has been made in that territory. New Orleans, particularly, is the scene of considerable activity at present because of favorable weather conditions.

MIDDLE WEST REPORTS GOOD BUILDING

Ohio and Michigan are, in accordance with the early gains made over previous years, continuing to do an unprecedented amount of construction work. Cleveland, Cincinnati, Columbus and Detroit report good building as continuing unabated. In Ohio some annoyance has been caused by heavy rainfall, but this has ceased and building has swung back with renewed energy into a record pace.

In Detroit the tremendous demand that has so far taxed the capacity of every plant in the city and that has compelled outside purchases of brick, is still continuing. This is particularly true in factory extensions and housing lines and, while several large office buildings are being contemplated, this kind of construction, owing to the relatively high cost of structural steel and other materials, is being held back.

You Simply Can't Do It—

You **can't** get the best results from your blasting unless you use a

CYCLONE DRILL

If you will write us for Bulletin B 4, we will tell you how the Cyclone Drill has paid for itself in a few months' use.

The Sanderson-Cyclone Drill Co.
ORRVILLE, OHIO

Durability and Dollars

When your rope breaks, your work stops; therefore, lack of durability means a loss of dollars.

HERCULES RED STRAND WIRE ROPE
REG. U.S. PAT. OFF.
The Original Colored Strand Wire Rope

is wear-resisting at every point; consequently, its use means fewer rope changes, minimum loss of time, and greater profit.

Write for catalog.

A. Leschen & Sons Rope Company
ST. LOUIS, U. S. A.
New York Chicago Denver Salt Lake City San Francisco

WANTED

5000 BRICK AND TILE MANUFACTURERS

Who are willing to be shown how to save time, labor and fuel (some makers say 50 per cent) by using HOOKS' IMPROVED UP and DOWN DRAFT KILN, uniform clay burning SYSTEM. Just fill out, detach and mail this

COUPON

OHIO KILN CO., Vigo, O.

Without obligation or expense "show me."

Name ....

Town ....

State ....

"Nothing Succeeds Like Success"

THWING

HIGH RESISTANCE MULTIPLE RECORD

PYROMETERS

Have been placed in
EIGHT MORE
CERAMIC PLANTS
Since the Cleveland convention

Are you Interested?

Let Us Tell You About It

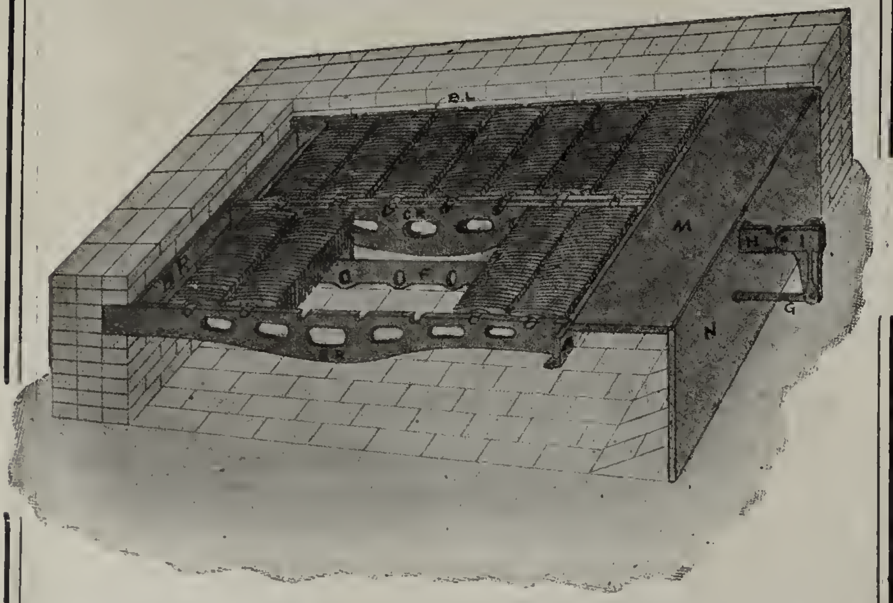
THWING INSTRUMENT COMPANY
437 N. FIFTH STREET
PHILADELPHIA, PA.

Those brick companies that have installed the

CYCLONE BOILER GRATES

never have to worry about their power plants because they know they are getting more heat out of less fuel than they have ever been able to get in the past.

We had to prove it to them first, however, just the same as we ask the opportunity to prove it to you—by installing our grates on 90 days' trial.



CYCLONE GRATE BAR CO.
BUFFALO, N. Y.

CHICAGO BUILDING PERMITS STILL CLIMBING

Permits issued in Chicago continue to exceed those of past weeks, months and corresponding periods of previous years, gradually climbing to record figures. A decided gain over both the preceding week and the corresponding period of last year, was shown in the value of permits issued during the week ending June 24, which totalled $2,808,000 in value, as compared with $2,391,300 the preceding week and $2,007,450 in 1915. Real estate sales also point to a continuance of building operations, being almost double those of last year.

The report from the western states is not quite as satisfactory as those previously recorded. Especially is this true of Kansas City, the metropolis that reflects the general conditions thruout the southern section of this division. Here building has been brought to a standstill because of labor difficulties.

While conditions thruout the Northwest are generally very satisfactory, Minneapolis' building activities are suffering a serious setback from a teamsters' strike that is crippling the delivery of materials.

CLAY PRODUCTS ACTIVE IN CALIFORNIA

The California clay products market is very active and, while some inconvenience has been caused by the stevedores' strike, as yet it has not materially affected building operations in that locality. A serious condition nevertheless is presented by the disturbance since, if it continues much longer, a general tie-up in the building trades is bound to result.

The common-brick situation remains in a very healthy condition, numerous improvements having been made on the local plants because of the heavy demand for their output. The outlook for hollow building tile is especially encouraging, the interlocking variety finding great favor among builders in that section.

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

Personal

C. C. Walters, manager of the brick department of the Hocking Valley Products Company, Columbus, Ohio, was confined to his home the latter part of June because of illness.

Joseph B. Shaw, a ceramic engineer of Pittsburgh, Pa., has been appointed Professor of Ceramic Engineering in the New York State School of Clay-Working and Ceramics at Alfred University. Mr. Shaw will take up his residence at Alfred in September.

C. J. Newman, who has been superintendent of the Clymer (Pa.) Brick and Fire Clay Company for the past four years, has severed his connection with that concern to accept a position with the Alphons Custodes Chimney Construction Company of New York City.

Leonard Huntress of Metuchen, N. J., assistant superintendent of the Didier-March Company of Perth Amboy, has resigned his position with that concern to enter the Alexander Hamilton Institute in New York City.

Mr. Huntress will also devote considerable time to clay association work in New Jersey.

M. H. McColn, formerly connected with the Hocking Valley Products Company of Columbus, but who has been holding other positions for some time, has returned to the company in the capacity of city salesman, taking the place of J. P. Turpen, who resigned to accept a similar position with the Ironclay Brick Company, also of Columbus.

Charles S. Finley, superintendent of the Austin (Minn.) Brick and Tile Company, has resigned his position with that company to accept his former position with the Lehigh (Ia.) Sewer Pipe and Tile Company. Mr. Finley was superintendent of the latter concern about six years prior to his connection with the Austin company, which was made about a year ago.

Professor Charles F. Binns, director of the New York State School of Clay-Working and Ceramics, Alfred, N. Y., has been awarded the "Special Honor" in pottery for a collection of stone-ware vases exhibited in Washington, D. C., at the Industrial Art Exhibition of the Federation of Arts. Professor Binns has been engaged for some years in the development of these wares, but the fifteen pieces exhibited are nearly all new.

Edgar Garlick, a member of the sales force of the Pursell-Grand Brick Company, is one of a fine body of young Cincinnatians who may soon see active service on the Mexican border, as he is a member of Troop C, the city's crack military organization, which has already been summoned for active service. Cavalry being the most needed division of the military service, the troop was among those first called upon and its members are the envy of Cincinnati's infantry regiment, which has not yet been summoned.

Arkansas

The Arkansas Zinc and Smelter Company has begun the operation of its pottery plant at Van Buren, Ark., and is manufacturing retorts and condensers. The plant is receiving about two carloads of fire-clay each week.

California

The Richmond (Cal.) Pressed Brick Company is sufficiently busy to operate seven days out of the week.

The Standard Brick Company of Los Angeles, Cal., is being reopened for business. The work is being carried forward under the direction of Simons Brothers of Los Angeles.

The Pomona (Cal.) Brick Company recently received an order for 150,000 brick to be used in building a garage at that point. This is but one of the many large contracts that has kept this plant working to capacity all season.

It is reported that negotiations are now under way for the construction of a new silica brick plant at Stockton, Cal., interested parties having investigated the conditions at that point that would tend to make the enterprise a successful one.

Gladding, McBean and Company, San Francisco, Cal., is enjoying a good business in its terra cotta department this season. The force of workmen making terra cotta at the plant at Lincoln has been increased recently and in other ways the capacity has been somewhat enlarged.

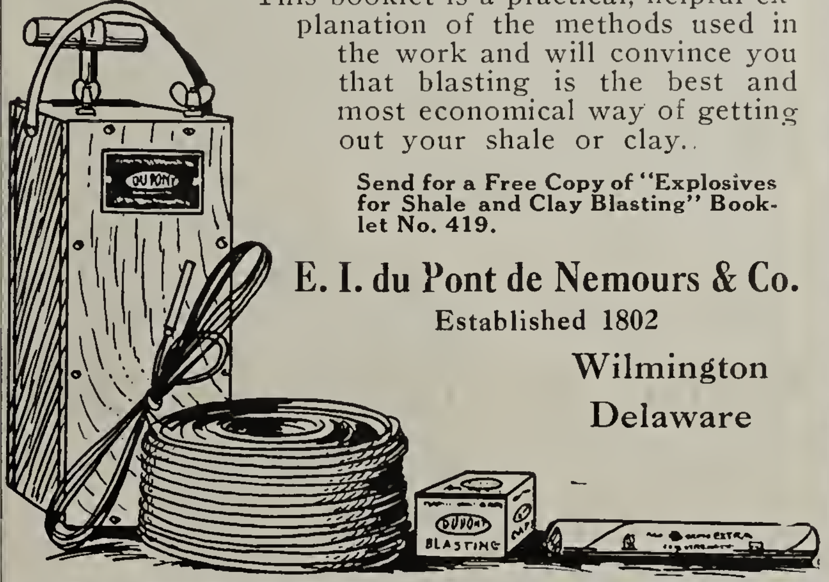
The Ione (Cal.) Fire Brick Company had a fairly busy

DU PONT

EXPLOSIVES

WILL enable you to mine shale or clay of any variety of formation with greater speed, less waste and more satisfactory results than any other method.

We have prepared a booklet explaining the use of explosives in this work, covering the subjects, "Blasting Down Shale, Stripping Clay Pits, Mining Plastic and Flint Clays, Draining Clay Pits," etc. This booklet is a practical, helpful explanation of the methods used in the work and will convince you that blasting is the best and most economical way of getting out your shale or clay.

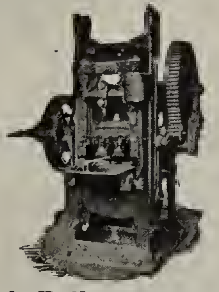


Send for a Free Copy of "Explosives for Shale and Clay Blasting" Booklet No. 419.

E. I. du Pont de Nemours & Co.
Established 1802
Wilmington
Delaware

WHATEVER equipment you need—don't buy until you know something about the

Lakewood Line



We Manufacture

Buckets, Kiln Bands, Pressed Steel Brick Pallets, Bearings, Portable Track, Ball Bearing Turntables, Switches, Richardson Double Die Steam Represses, also Miniature Hand Represses.

Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. The Lakewood Line is Built to Last.

Ask for Catalog No. 11

Lakewood Engineering Co.

Formerly the Ohio Ceramic Eng. Co. Cleveland, Ohio

THEY CHOSE
PRICE PYROMETERS
In Preference to All Other Makes

One of the largest sewer pipe manufacturers in the world was asked recently what their experience had been with Price Electric Co., of Cleveland, makers of Price Pyrometers, and this was their answer:

"About one year ago we equipped our entire plant with Price pyrometers, thirty-six kilns in all. I can say that they are giving us entire satisfaction and that we would not care to dispense with them and to operate our plant without a pyrometer.

"We looked over quite a number of installations of other makes of pyrometers and decided that the Price would suit our conditions much better than any of the others. The installation is quite simple and the instruments are very easily taken care of."

NEED WE
SAY MORE?

The Price
Electric Co.

12367 Euclid Ave.
CLEVELAND - OHIO

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Why Most Brick Streets
Use Lehigh Cement

Because it is not only high in strength but dependably uniform.

A perfect vitrified paving block of your manufacture used with a perfect cement filler of Lehigh Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use Lehigh Cement than all others combined.

You Cannot Afford
to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

LEHIGH
CEMENT

Cement Grout for Permanence.

month in June. The company is keeping at work a force of eighty employes at the plant which has an annual capacity of 5,000,000 brick with its ten kilns. David R. Eisenbach, president and manager, makes his San Francisco headquarters in room 946 Monadnock Building.

The Stockton Fire Brick and Enamel Brick Company, whose San Francisco offices are now located in the Rialto Building, is making some improvements at the plant in Stockton in order to more efficiently take care of its growing business. J. T. Roberts, manager of the company, is now on a business trip in the East. Euguene Corrigan remains in charge of the San Francisco office.

Mr. Hoyt, manager of the United Materials Company, San Francisco, Cal., says business for June was very fair, showing an increase over May which was a good month. The demand for rough-textured face-brick, manufactured by the Los Angeles Pressed Brick Company, is growing apace, and there is no lessening in the demand for red roofing tile. The largest recent job reported by this company is that for supplying the brick for the new Overland Garage in San Francisco.

The Los Angeles (Cal.) Brick Company has been authorized to issue $125,000 in bonds at par, the proceeds of which will be used for the purchase of additional property. The remaining outstanding portion of the last issue, amounting to $45,000, will be taken up prior to the sale of the newly authorized bonds, which will be dated as of March 1, 1916, maturing March 1, 1926, and bearing interest at the rate of six per cent. per annum.

The Steiger Terra Cotta and Pottery Company, San Francisco, Cal., has just distributed a large number of samples of its new "Thru-an-Thru" terra cotta to architects and builders. Some new samples in glazed terra cotta have been added to the company's lines this month. The special advantage of this material for high-class city buildings is that dust, dirt, wind and weather have practically no effect upon it. Also the coloring is run all thru the terra cotta so that chipped places do not show bad marks.

Work on the construction of the Union Brick and Tile Company's plant at Modesto, Cal., is expected to commence very shortly, the company having been incorporated during the past fortnight with a capital stock of $50,000. The plant is to be built on a forty-acre tract of land on the outskirts of the town. W. M. Anderson, who has been most active in its organization, is to be general manager of the company and has already secured enough orders to take care of the year's output of the brick, hollow building tile and drain-tile that are to be made.

The Pratt Building Material Company, San Francisco, Cal., has moved offices from the second floor of the Examiner Building to rooms 622 and 623 on the sixth floor. The new offices are more light and airy. Mr. Pratt, president and manager, reports splendid success with interlocking building tile which the company manufactures at Sacramento. It recently supplied this material for the new W. and W. Garage at Pittsburg, Cal. The John Bollman building at Fourth and Bluxom streets, San Francisco, is one of the company's largest local jobs. Material of the same kind is also being provided for a new business block at Eighth and Mission streets, and a large apartment house at Jones and Hyde streets. Among the out-of-town contracts may be mentioned two new oil stations, one at Marysville and the other at

Gridley, Cal.; and an office building for the Goodyear Redwood Company at Greenwood, Mendocino county, Cal.

Colorado

The Golden (Colo.) Sanitary Brick Company has been re-incorporated at that point, where it will remain for at least another year. Plans are under way to further improve the plant and enlarge its capacity. The incorporators of the company are H. M. Pratt, H. W. Pratt and J. C. Stephens of Golden.

Connecticut

A kiln of 350,000 brick recently finished by Brower and Best of Thompsonville, Conn., was sold before the brick were burned. This plant, like others in various sections of Connecticut, is rushed with work and the best year ever witnessed is predicted.

District of Columbia

Business in Washington is reported as being very good, both among face and common-brick manufacturers and dealers.

It is understood that some extensive improvements are contemplated in the Washington (D. C.) office of the Hydraulic-Press Brick Company. They will be in the nature of a new and up-to-date exhibit.

The Washington (D. C.) Silica Brick Company has been sold and bought again by a new concern. Most of the directors are the same as in the old company. The name of the new company is the Terra Cotta Company. It is the plan of the company at present to install some new machinery in the near future to take care of its increased business. The business remains under the same management.

Georgia

The Augusta (Ga.) Vitrified Shale Brick Company is the name of a newly incorporated concern, having a capital stock of $100,000. This company will manufacture brick, tile and sewer-pipe and has been incorporated by John C. and W. K. Hagler of Augusta, and J. I. Hankison of Aiken, S. C.

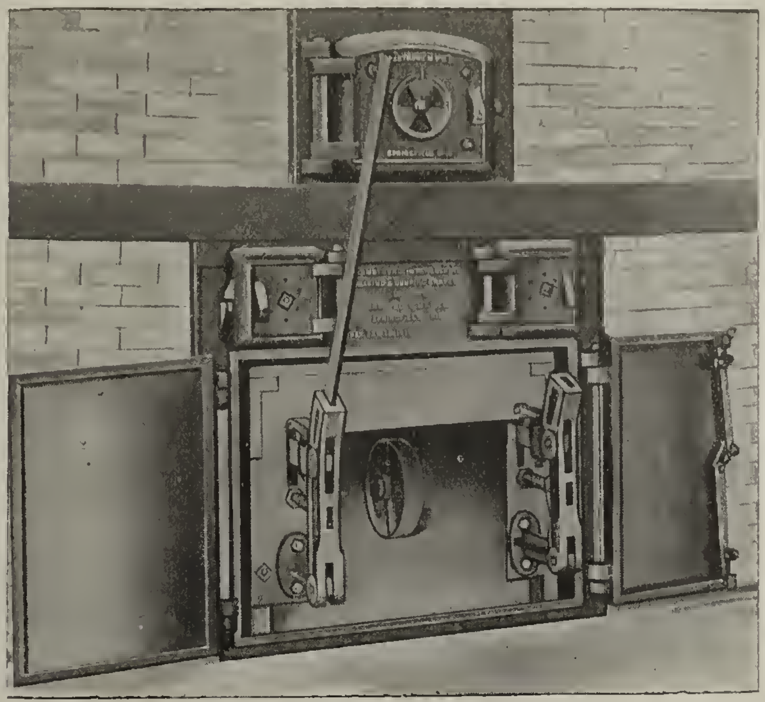
Idaho

The Moscow (Idaho) Fire Brick and Clay Products Company has just been organized with a capital stock of $500,000. The company is planning to manufacture all of its products at Moscow. The directors of the company are Warren Truitt, F. S. Shoesmith, A. S. Lyon, H. B. Mickey and John Nisbet. The company has a remarkable deposit of fire-clay which covers twenty acres near Joel, about five miles from Moscow. Satisfactory tests and experiments warrant manufacturing on a large scale, according to the reports of experts.

Illinois

The plant of the Ray (Ill.) Tile Works recently purchased by James S. Nicholson, Monadnock block, Chicago, is to be torn down and new buildings erected. J. F. Thompson, superintendent under the old ownership, has been employed by Mr. Nicholson and will have charge of the plant.

The Poston Brick Company's newly constructed plant at Springfield, Ill., began operations during the latter part of June. Electrically-driven, and built along the most modern lines, the plant is one of the best in the



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

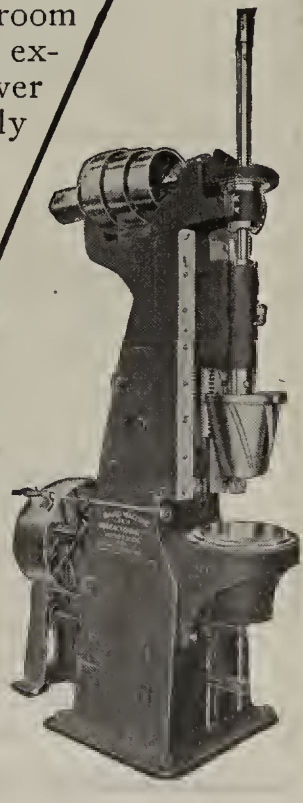
A bi-product that is profitable

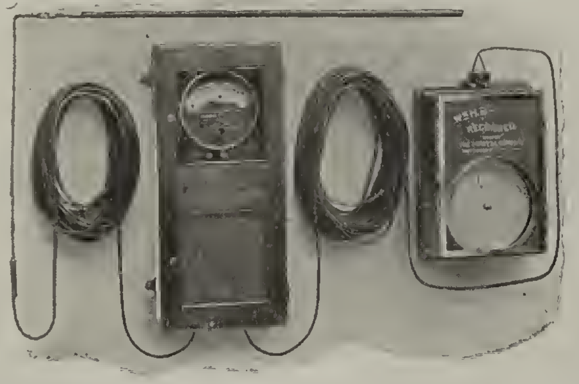
Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

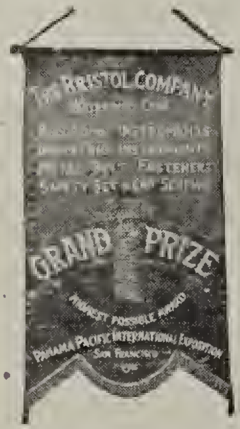
Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.





Bristol's Pyrometer Installation

For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.



Write for Bulletin 205

THE BRISTOL CO.
WATERBURY, CONN.

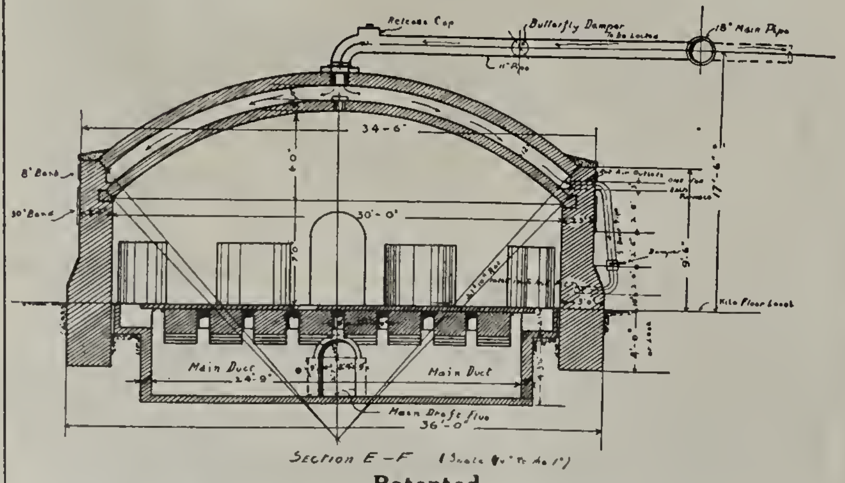
BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO

We Don't Disturb Your Present Kilns

THE McManigal Super-Heating System can be applied to the kilns you already have—that's one advantage.

¶Yet there are many other good reasons why you should adopt the McManigal System—it protects the fire brick crown from outside cold—it collects and utilizes the enormous amount of radiated heat—there is perfect control of fires with a big saving in fuel and time.

¶Let us send you information and figures showing what we are doing for others.



Patented

The McManigal Grateless Furnace Company
LOGAN - - - - OHIO

state and is prepared to manufacture both face and paving-brick, making, chiefly, "Oriental" rough-faced brick. Five of the twelve kilns have already been completed and the work on the others is being speeded up. I. G. Poston is president of the company; J. C. Hale, vice-president and sales manager, and E. Z. Poston is secretary and manager.

The ninth plant of the General Refractories Company is soon to be built at Joliet, Ill., this statement having been given out following the acquisition by the company of thirty acres of land adjoining the tracks of the Elgin, Joliet and Eastern railroad. Work on the plant is expected to begin at once. C. C. Cheney, formerly superintendent of the American Refractories Company's plant at Rockdale, a suburb of Joliet, has accepted the general superintendency of the new plant and will supervise its construction. It is expected that 350 men will be employed in making silica and magnesite brick for which the company is renowned.

Indiana

The Standard Brick Manufacturing Company of Evansville, Ind., has increased its capital stock $50,000, making the new capitalization $100,000.

It is rumored that a large brickmaking company is being promoted by J. Leb Watkins of Newcastle, Ind., to be known as the Natural Products Company and to be located at Shoals, Ind. According to Mr. Watkins, the organization already has an option on 1,200 acres of coal property which contains large deposits of a high-grade clay and shale suitable for the manufacture of both building and paving-brick.

Maryland

The Aetna Brick Company's plant at New Cumberland, Md., after a suspension of operations for several months, during which time many improvements were made, has resumed operations. Additional machinery has been installed, and this has resulted in the capacity of the plant being increased. With this property on the active list, all of the Mack Manufacturing Company's plants in the New Cumberland district are running full time.

Michigan

S. A. Morman and Company of Grand Rapids, Mich., is furnishing the hollow-tile fireproofing for the new Steketee building, Detroit, which will be one of the largest dry goods and general merchandise stores in the state.

The purchase of 400,000 paving-brick with which to pave Washington street, Owosso, Mich., has been made, A. B. Lutton of the Metropolitan Paving Brick Company, Canton, Ohio, closing the contract on June 8. The city commission of that place is very pleased that the improvement is to be made, since it has been needed for a long time.

The Frederic B. Stevens Company has opened a new downtown showroom at 1656 Penobscot building, Detroit, for the display of "Stevens" vitrified brick. John A. Gillard is in charge of this new display room. The firm will continue its main showrooms at the general office building, Larned and Third streets, where there is a complete display. Albert Van Court is in charge at the main office.

According to J. P. Theisen of the Ajax Brick Company, Detroit, Mich., that company is enjoying a volume of business which is the best in years, due principally to the enlargement of automobile factories in that vicinity. A change was recently made in the character of the product manufactured at this plant, the soft-mud process supplanting the stiff-mud formerly employed. In making this change a soft-mud machine of the latest design was installed. A. M. Schneider was recently appointed superintendent of the plant.

Frank L. Schafer and Company, Inc., with offices at 807 Kresge building, Detroit, has established a building material yard at Buchanan and the Lake Shore Railroad. This concern specializes in face-brick and partition tile. It represents such firms as Everhard Brick Company, Massillon, Ohio; Colonial Brick Company of Mogadore, Ohio; Johnetta Brick Company, Johnetta, Pa.; the Warren B. Ferris Brick Company of Columbus, Ohio; the Acme Brick Company of Marietta, Ohio, and the Darlington Brick and Mining Company of Darlington, Pa.

A miniature brick house is to be constructed in the permanent exhibition quarters of the Builders and Traders Exchange in the Penobscot building, by the Detroit Brick Manufacturers' and Dealers' Association. The building will be a plain brick home, two stories high, and will contain 7,000 brick, 3⅜x1¾x1-inch size. The structure will be seven feet square and will be erected on a platform two feet high, which will be built of Detroit common-brick. The space in which the exhibit will be erected is 14x10 feet in size. The burning of the brick to be used in the house is being done by the Detroit Flower Pot Company and the work of building it will be in the hands of Stokes and Winningham. The exhibit will be ready about the last week in July.

There has been a big improvement in the brick situation in Detroit since the early part of June as a result of the additional equipment installed in many of the local plants. Up to that time, as previously reported, considerable common-brick was being shipped in from the outside, particularly from Chicago. The Illinois Brick Company, during the spring, shipped 19,000,000 brick for Detroit consumption. The Mamer Brick Company of Benton Harbor, Mich., also shipped in a large quantity, as did Ohio firms. The John S. Haggerty plant has started two new machines which are capable of turning out an additional 66,000 brick per day; Mercier, Bryan and Larkins Company also have added two machines; William Clippert has added one machine; George H. Clippert and Brother, two machines, and the Jacob Daniel Brick Company, one machine. The situation has eased up considerably so far as taking care of orders is concerned, altho the demand for common-brick is just as brisk as ever. It is estimated that 1,100,000 brick per day is the Detroit production at the present time, with every indication that it will remain at approximately that figure until late in the year. There seems to be no let-up whatever in building activities.

Minnesota

The old brick plant located at Tower, Minn., for the first time in four years had steam in its boilers recently. This plant has been purchased by the Duluth Clay Products Company, of which D. S. Crosby of Chicago, is president, and S. E. Cullom, its ceramic engineer, who is in charge of the work. A crew of men has been busy for several months getting the plant in working condition. A

THINK of the name of almost any prominent paving brick manufacturer, and you'll also think the name of a user of Marion Shovels. The Bessemer Limestone Company, for example, uses "Marions" to dig the shale for Bessemer Block, which of course keeps a whole battery of them busy.

"MARIONS" DIG THE SHALE FOR EVERY "BESSEMER" BLOCK

—and that isn't all, either, for "Marions" do the work better and cheaper than any others, and with a more uniform mix of shale.

Firms like Sayre & Fisher Company, Purington Paving Brick Company, Metropolitan Paving Brick Company, and scores of others of equal prominence, testify that "Marions" are surprisingly cheap to operate and require almost no repairs.

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Established 1884 MARION, OHIO

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UNLESS

You have a fleet of

INVINCIBLES

Look!

IT IS BALANCED

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It slides—down the runway—and the hind legs don't rip and tear.

It Rides Its Load

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You can't possibly get capacity out of your machines—you can't get every unit to run smoothly if your belts are slipping or if they don't pull evenly. You know that.

Why worry along that way when it is so easy to simply specify

Hettrick Canvas Belting

which is giving clay products manufacturers such excellent service daily in power transmission, elevating and conveying.

Remember the name—"Hettrick."

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There is a man—

a manufacturer of fireclay products; he has used Canton Kiln Grates for four years.

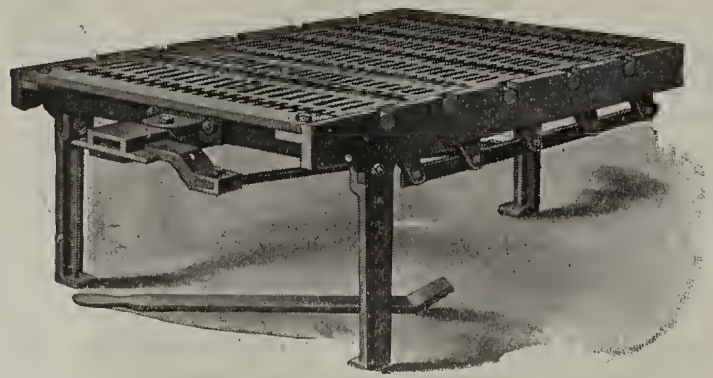
This man saved 30% of his burning costs each year in the first three years.

Today, in the fourth year, he claims and is accomplishing a saving of—40%.

Are you neglecting an opportunity? In all fairness to yourself, to your trust, to your company—is it right for you to any longer neglect an investigation of Canton Kiln Grates?

We have dozens of sets in kilns. We will furnish you a set on a trial basis.

Write that letter to us—now.



The Canton Grate Co.
1706 Woodland Ave.
CANTON OHIO

steam pump is now being used to pump the water out of the pit.

Missouri

The plant of the St. Charles (Mo.) Press Brick Company has been sold by its former proprietor, H. W. Mittelbuscher, to Muth Brothers of St. Louis for a consideration of $16,000. In part payment for the plant, Mr. Mittelbuscher received a 460-acre tract of farm land in Mississippi which he intends to cultivate. Muth Brothers are planning to enlarge the plant and increase its capacity.

The Shale Hill Brick and Tile Company of Chillicothe, Mo., has made several improvements at its plant of late in an effort to supply the existing heavy demand for its product. Additional machinery is still to be installed and further plant extensions are contemplated. This company is manufacturing hollow-ware, face, common and paving-brick, a large order of the latter having recently been sold to Chillicothe for paving one of its streets.

Montana

Eighty acres of land were recently secured by the Roundup (Mont.) Brick and Tile Company at a meeting of the board of directors. The tract was formerly owned by M. M. Klein and is located at the Klein coal mines. As his consideration for the land, Mr. Klein has taken eight hundred shares of the capital stock of the company. E. M. Storer, who has conducted the tests made upon the clay and taken an active part in the formation of the company, has been appointed superintendent of the plant and has already started work on its construction. A plant to cost approximately $30,000 will be erected, designed to have a capacity of 25,000 brick per day. The coal veins above and below the clay are of a marketable grade and it is expected that the proceeds from the sale of this commodity will be sufficient to offset the expense of manufacturing the brick.

Nebraska

The Hibberd Brick Company of Kearney, Neb., commenced operations for the season during the latter part of June. All of the brick on hand are to be used in the construction of a local gymnasium and it is expected that the plant will be operated thruout the summer in supplying the local demand.

New Jersey

It is rumored that local interests of New Hope and Lambertville, N. J., have employed T. G. Kitchin, a civil engineer, to make surveys and collect data pertaining to the location of a brick plant at the former point. This undertaking of establishing a plant was formerly in the hands of the New Hope Vitrified Brick Company and the Pennsylvania Vitrified Brick Company, but having failed to materialize, the proposition was taken over by local parties.

New Mexico

The New Mexico Fire Brick Company of Gallup, N. M., is doing a tremendous volume of business, the capacity of the plant being taxed to the utmost to supply the demand for its product.

New York

Joseph A. Weiant, a retired brickmaker of Haverstraw, N. Y., died at his home in that city on June 20, in his seventy-fourth year.

The Simplex Brick Company has been incorporated at New York City with a capital stock of $100,000 to manufacture clay products and do construction work. The incorporators of the new concern are W. Ward, S. U. Hopkins and W. J. Kindgen, the latter of 2043 Valentine avenue, Bronx.

In the June 20 issue, under New York news, a statement was made that the three brickmaking yards at Rosetown (N. Y.) were tied up in a strike in which over seven hundred men were participating. Since the publication of that item it has been discovered that the only difficulty was a misunderstanding by the negro laborers as to the day upon which they were to be paid, they having made an early demand for their wages. The Rose, Jova and Armstrong companies are those interested.

Ohio

The Zoar Fire Clay Company of New Philadelphia, Ohio, has increased its capital stock from $65,000 to $100,000.

George P. Wilson, for the past three years secretary and manager of the Devonshire Brick Company of Dillonvale, Ohio, has severed his connections with that company to accept a position with the Building Materials Company of Steubenville, Ohio.

The common-brick plant operated at Delphos, Ohio, by F. Minzing and Son, is laying plans for the manufacture of drain-tile. The owners are contemplating the purchase and installation of machinery for this purpose because of the good demand existing for this product in that territory.

The Hocking Valley Products Company of Columbus, Ohio, reports a good demand for face-brick, altho trade is not quite as brisk as was the case a month ago. The car shortage, which was rather distressing in May, has now eased up and there is a better supply of cars for the movement of brick.

Representatives of the National Paving Brick Manufacturers' Association and the Ohio Paving Brick Manufacturers' Association met at Cleveland recently to go over specifications for paving-brick. Only minor changes were made in the specifications, a complete announcement of which will be made in a very short time.

The greater part of the last week in June was given over to a holiday by the members of the Cleveland (Ohio) Builders Exchange. A party of nearly one hundred left on the great ship Seeandbee for Buffalo, to take in Niagara-on-the-Lake and Niagara Falls, returning Saturday night.

The Defiance (Ohio) Clay Products Company is increasing the capacity of its plant. When the improvements now under way are made, the capacity will be increased to 10,000,000 brick per season, besides the large amount of hollow-ware produced. Christ Diehl is president of the company and W. Bergin, manager.

The Napoleon (Ohio) Brick and Tile Company, operated by John Mehring and Son, is contemplating the construction of several additional kilns of the round down-draft and scove type. At the present time the plant has

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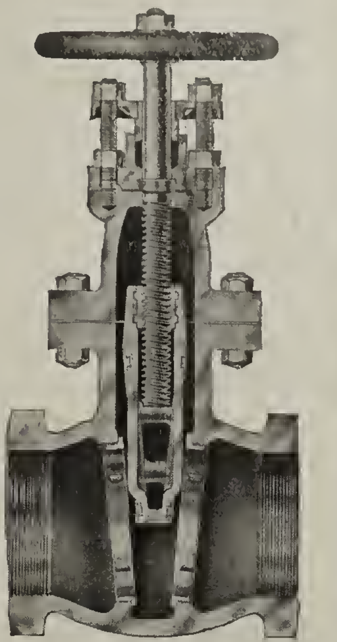
Size for size, a gate valve will pass, within a given time, more fluid, with less friction, than a globe valve. For this reason, many users (using globe or angle valves on steam) prefer gate valves for the water lines.

Jenkins Bros. gate valves present a full, straightway opening, and possess other points of merit which surpass the average gate. This superiority is due, among other things, to distinction in design, accuracy of workmanship, interchangeable construction, use of metal of higher quality, and a big safety factor.

Consult us on any valve problem. We will gladly co-operate with you in selecting the right valves for your requirements. Write for catalog B20.



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Dewey 5-Ton Locomotive

has a special designed boiler with a minimum number of angles, corners and pockets such as are so common in other makes and which serve as collecting places for mud and scale. This makes the Dewey an ideal clay plant locomotive.

The Dewey is stronger, safer and longer-lived and does better work than regular types. "Let the Dewey do your work."

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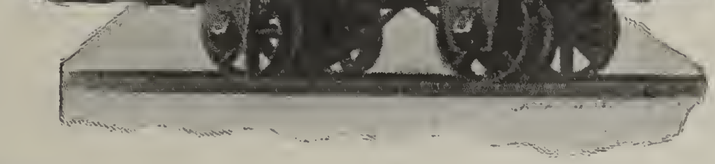

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The ALL-STEEL No. 1

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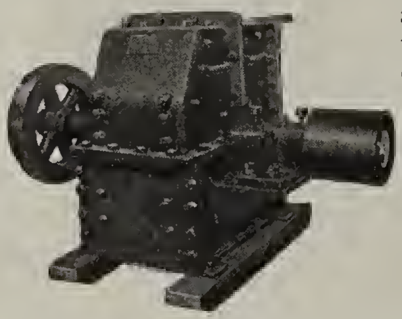
It is built entirely of steel and lined throughout with manganese hardened steel plates. It will endure the hardest service.

The hammers are adjustable to compensate for wear and to keep the product uniform.



Easy access is afforded to the inside of the pulverizer, as the screens slide out of the lower casing like drawers.

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125 pleasant rooms, with private bath, facing large, open court
$2.50 Per Day

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Also attractive rooms from $1.50.

The restaurant prices are most moderate. Equally convenient for amusements, shopping or business. One block from Penna. Station.

two round down-draft and one scove kiln, giving it a yearly capacity of 1,500,000 brick and 600,000 feet of drain-tile.

The Lakewood Masons and Supply Company, Cleveland, Ohio, formerly located at Hird avenue and the Nickel Plate tracks, that city, has moved to a new location, occupying a three acre tract at Madison avenue and the New York Central tracks. Offices are at 11201 Berea road. Need for increased facilities to handle business is the result of two years' activity, according to John Scheuer, president of the company.

The Gaddis-Harrison Brick Company located in the Brunson building, Columbus, Ohio, has taken the central and western Ohio agency for Dension interlocking tile, a product of the Delaware (Ohio) Clay Product Company. The tile have been handled by the Interstate Clay Products Company of Cleveland, Ohio, which made the contract with the Gaddis-Harrison company. The last mentioned concern has an office in Dayton which will look after the western Ohio territory.

A defense of present prices on brick and similar building materials has been made by W. T. Rossiter, general manager of the Cleveland Builders Supply Company. In his statement Mr. Rossiter points out that material prices, in Cleveland at least, are lower in many cases than in other cities. The main reason for the pessimistic attitude of certain persons planning building, Mr. Rossiter believes, is the high price of labor which, his figures show, is from ten to twenty-five per cent. above normal.

An interesting argument in favor of brick construction and against wood is contained in figures being used by Robert C. Mitchell, general manager of the Farr Brick Company, Cleveland, Ohio, in publicity work. Mr. Mitchell has taken the National Fire Underwriters report for 1915, which shows the astonishing total of $22,310,524 loss in frame construction during that period, against $2,343,655 in brick buildings. These figures are compiled from statistics supplied by thirty-eight states.

Bad weather may be held responsible for slower business during the early part of the season in the Cleveland (Ohio) territory, according to Charles J. Deckman of the Medal Paving Brick Company. This firm, like others in that section, is getting its full share of business, however, but the one difficulty that now confronts the trade, in the opinion of Mr. Deckman, is that of getting the material to the jobs. Car shortage has been relieved, and this has helped matters. "From present indications it looks to me as tho there will be more work for the balance of the year than the brick manufacturers can take care of," says Mr. Deckman.

The Cincinnati (Ohio) Clay Products and Supply Company has received the order for supplying the brick needed in the new medical building of the Cincinnati General Hospital, which will cost about $250,000. About 300,000 brick will be required and these will be shipped from the plant of the Eastvale (Pa.) Brick Company. The Cincinnati Clay Products and Supply Company has also received the order for furnishing brick for the new Reading school, on which 100,000 or more rough-textured face-brick will be used. President John Stoner states that, except for the laborers' strike, the outlook for business is good, the volume of orders on hand and in sight being excellent.

Steps are being taken for the organization of a new corporation to take over the plant of the Shawnee Flash

Brick Company, located at Shawnee, Ohio, which was purchased at a receiver's sale several weeks ago by four of the bondholders. The four purchasers are L. W. Tussing, D. L. Mauger, J. J. Enlows and John Koontz. There was an issue of $25,000 in bonds on the property, a majority of the holders of which had signified their intention of taking part in the reorganization plan. So far, the property has not yet been deeded over to the bondholders by Carl Doney, the receiver. The purchase price at receivers sale was $25,100. The name of the new corporation and the capitalization have not yet been determined.

The laborers' strike in Cincinnati, Ohio, which began several weeks ago, and which is still dragging on, is having a bad effect on business, according to several material dealers who have had an opportunity of getting a line on the situation. The comparatively small number of men out, estimated at hardly more than a hundred, was at first looked upon as not being very serious and that work would not be interrupted, but several of the larger jobs have felt the strike and are being delayed in consequence. The effect on future work is the most unfavorable factor, however, as jobs which would have been started are being held up pending the settlement of the trouble. It is the fervent hope of all branches of the building trades that the difficulty will be settled soon, as it is felt that such a relatively unimportant strike should not be permitted to hold up building business.

Oregon

George W. Warren, president of the Warren (Ore.) Clay Company, has returned from an inspection tour of a number of large clay plants in the Middle West and western Canada, which he visited in company with George Chew of Spokane, vice-president, and Warren Overpack, manager of the company. Machinery was purchased and arrangements will soon be made for the erection of the first unit of the new local plant.

Pennsylvania

The Montgomery Shale Brick Company has been incorporated at Philadelphia, Pa., with a capital stock of $100,000 to deal in clay products.

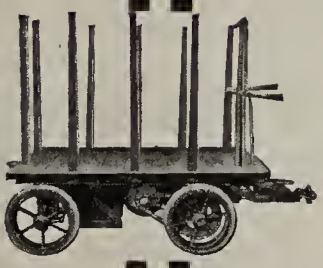
The Delaware Tile Company is a newly organized concern incorporated at Garrettford, Pa., with a capital stock of $5,000. William M. Blackburn of Garrettford is treasurer of the company.

With a capital stock of $10,000, the Bessemer Brick Company has been formed at Monongahela City, on the Monongahela River, south of Pittsburgh. The incorporators are J. A. Spence, F. R. Colvin and Louis Raynal, all of Monongahela City.

Bids are being received for the erection of a brick plant at Mount Union, Pa., for the General Refractories Company. The structure is to be one story in height, and measuring 81x90 feet. Durham Bothers, with offices in the Heed Building, Philadelphia, are the architects.

The Reading (Pa.) Shale Brick Company has been awarded the contract for supplying 150,000 rough-textured brick to be used in the new $300,000 Lebanon High School Building. The school is now in the course of construction and the work of supplying the brick will be rushed forward with all possible speed.

The plant of Cyrus Borgner and Company, well-known manufacturers of fire-brick in Philadelphia, Pa., was re-



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One truck will displace from three to eight men

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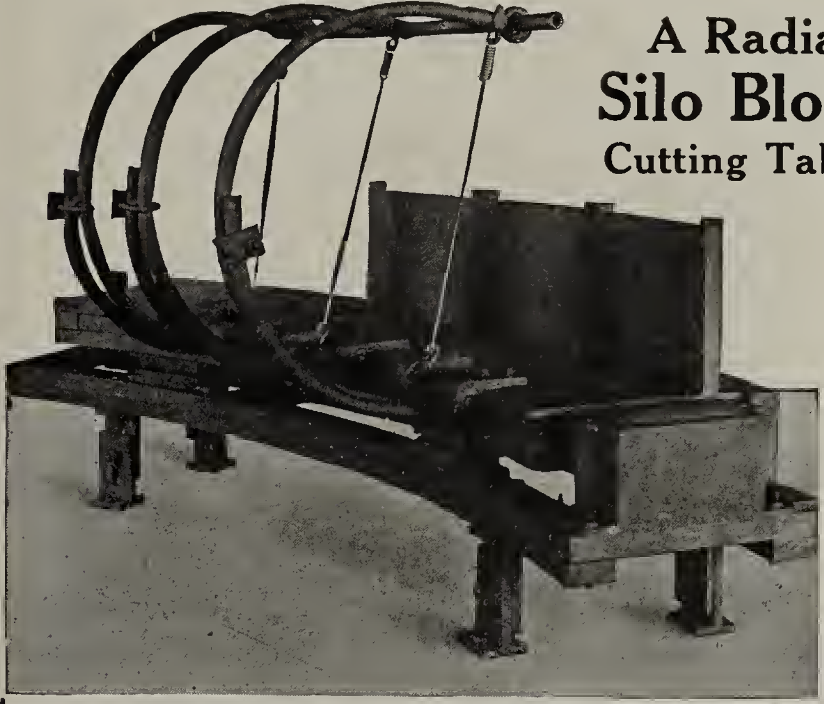

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Cutting Table

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Are you prepared to manufacture—silo block—cheaply?
Get in touch with us and find out about this modern cutter.
You can't afford to be without it.

WRITE US TODAY—NOW
CRAWFORD & McCRIMMON CO.
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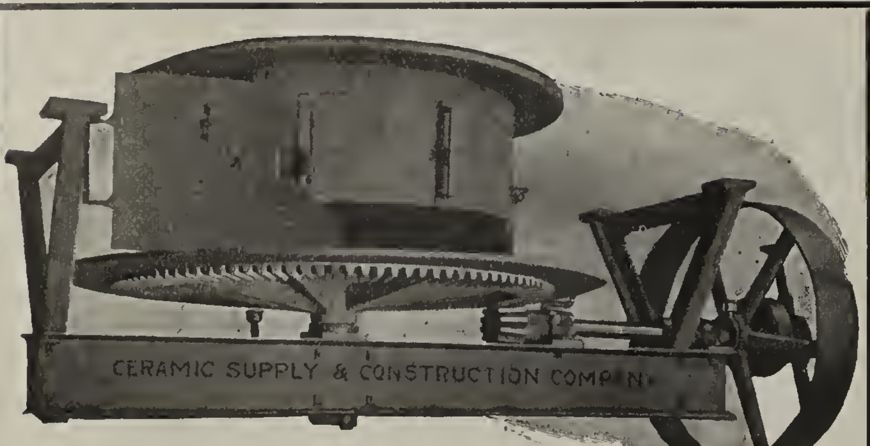

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is fast coming into general use. There's a reason. Let us show you—furnish the machine on trial.

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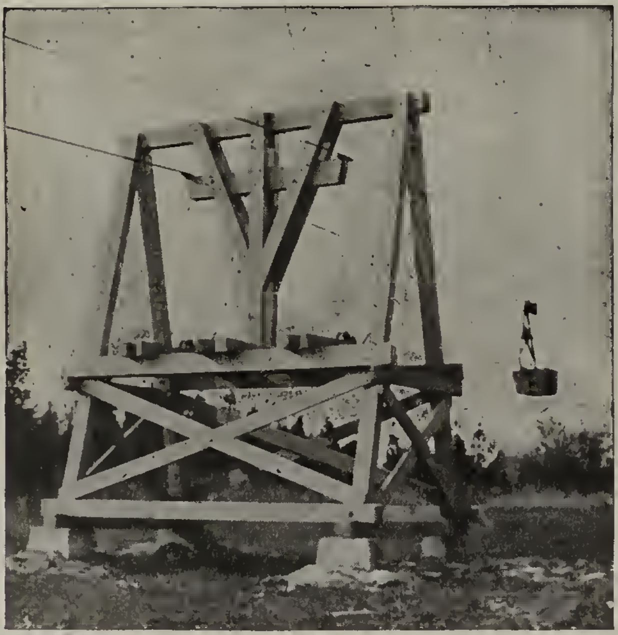
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requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

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New York ST. LOUIS, MO. Seattle

cently damaged by a fire of unknown origin. The conflagration started in the early hours of the morning and had gained considerable headway before being discovered. Prompt action upon the part of the fire department confined the blaze to a small area and the loss, while not given out, is known to have been small.

Valued at $65,000, the entire estate of James M. Mack, former president of the Hamburg Vitrified Brick Company, and head of the Mack Paving Company, Philadelphia, Pa., is left to his widow by the terms of his will. The estate is located at Ford road and Monument avenue, Overbrook, and is known in that section as one of the most beautiful homes on the outskirts of Philadelphia. Mr. Mack died on May 18, of this year.

The Waynesboro Brick Company, Philadelphia, Pa., is busily engaged in filling an order for 200,000 brick to be used in the construction of a new building for Penn Hall, Chambersburg, and has also received an order for 100,000 brick for a firm in Shippensburg. A general condition of prosperity is prevalent in that section of the state and the brick plants are operating to capacity in an effort to keep abreast with orders.

The Eldorado (Pa.) Brick Company is soon to be put in operation by its owners who have abandoned the idea of selling the plant or not operating it. New machinery is being installed and a crew of men are at work putting it in operating condition. It is said that the cause of this action was the receipt of a large number of orders calling for about 400,000 paving-brick. E. E. Kantz of Burnside is president of the company, Enoch Bellis of Ebensburg, vice-president, and Andrew McQuown of Mahaffey is secretary and treasurer.

The Harbison-Walker Refractories Company, which operates a plant at the foot of Welsh street, Philadelphia, Pa., is at present enlarging its factory. The prosperity of the company is due largely to the increased activity of the steel companies, for the company manufactures a brick that is used in lining furnaces. One of the improvements at the local plant is a large rotary kiln, more than one hundred feet in length, which is turned by heavy machinery and which is used for separating the grain material from the magnesite rock, which is obtained from California.

Rhode Island

The old sand-lime brick plant at Auburn, R. I., recently purchased by the Providence Brick Company, has been put in working order and the boilers fired for the first time in two years. The new owners plan to start work making brick within a very short time.

South Carolina

The Southern Clay Products Company has been incorporated at Sumter, S. C., with a capital stock of $75,000 to mine and sell raw clay for crude and finer clay products. Extensive holdings have been acquired at both Blaney and Horrell Hill, S. C., which were previously operated as clay mines, but without success. The incorporators of the new enterprise are A. C. Phelps, R. L. Wright and E. M. Hall, all of Sumter.

Texas

The Brazos Brick and Tile Company of Rosenberg, Texas, one of the largest brick plants in that section of the state, has been leased to B. E. Norvell of Bay City and will be put into active operation immediately.

The Houston (Tex.) Brick Works is about to double its present daily capacity of 40,000 brick as a result of a purchase recently made by the company by which it has acquired thirty-nine acres of land for a consideration of more than $26,000. Three more kilns are to be added to the present battery of two and other improvements will be made in the machine room.

Utah

The Ogden (Utah) Pressed Brick and Tile Company has just built a 1,500 foot railroad spur from the plant at Harrisville to one of its best clay banks.

A test kiln of brick is being burned at Nampa, Utah, by Mr. Faubion, a contractor, in order to determine the value of the local clay for this purpose. A new brick high school building is to be constructed at this point, and it is in an effort to land the contract for the job that a plant may be established, provided the clay proves suitable.

S. H. Belmont, manager of the Provo (Utah) Pressed Brick Company, was a recent visitor to Chicago, in search of some new and second-hand equipment for his plant. Mr. Belmont reports business in his section as being better than for two years past. Drain-tile is a coming product in that part of the country, where it is used to remove the excess water from the low spots on irrigated land. New drainage districts are also being gradually laid out, creating considerable business for the drain-tile manufacturer, where he can overcome the growing competition of cement tile.

Virginia

It it reported that a new brick and tile plant is to be constructed at Glasgow, Va., by Charles H. Locher, a New York contractor. The plant, it is said, is to cost $100,000 and will require about two hundred men to operate it. Work is soon to start on its construction. Clay will be hauled across the James river by an aerial tramway.

Washington

The city of Bellingham, Wash., is about to commence important sewer improvements, and the city of Anacortes is also preparing for public sanitary work.

The Northern Clay Company of Auburn, Wash., furnished the terra cotta for a large new natatorium at Second and Lenora streets in Seattle. The company has received many compliments upon the beauty of the completed work. The company makes a very handsome polychrome terra cotta.

HOW PUBLIC RECORDS WILL ASSIST *in promoting the use of* DRAIN TILE

(*Continued from Page 25.*)

forces the farmer to do his borrowing without receiving the full benefit of that influence on interest rates which convincing proof of his investment in drains and greater assurance of uniform crop production would bring.

Does Your Product Check and Crack in the Drier?

It should not. With correctly designed drying apparatus it would not. These are unnecessary evils, due to wrong drying methods. A great many brick manufacturers have found out by experience that

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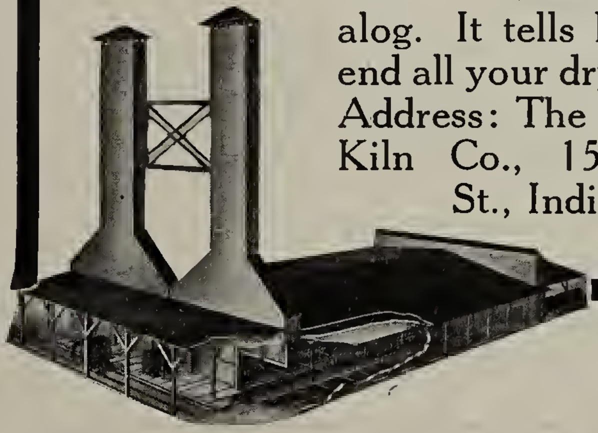
prevents checking, cracking and kindred evils. We would like to send you their names. Write for our catalog. It tells how you can end all your drying troubles. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



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An example: Mr. Louis J. Landmeir, engineer in the above plant, tells us that scientific treatment of this belt with Cling-Surface costs him only ninety cents per year. Then he goes on to say:

> *"Belt has had Cling-Surface treatment about three years. Is very pliable. No trouble with lacings pulling out or with belt slipping. Never have to take up belt. Used various belt dressings, but never had such success as with Cling Surface."*

Cling-Surface the life preserver for belts

Can you imagine how ninety cents could have been spent to better advantage?

Don't you think Cling-Surface worth investigating?

Give it a trial and you will be convinced.

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SAY "I SAW IT IN BRICK AND CLAY RECORD"

WHAT A GREAT SATISFACTION!

Isn't it a lot of satisfaction to your burners to know they can simply look at an indicator any time and know exactly how much temperature they have? And here's the indicator that helps them to know—it is furnished only with the

BEIGHLEE "THE PYROMETER WITH A CONSCIENCE"

You know how important it is to have a pyrometer that is absolutely dependable at all times. Well, that's just what you have in the Beighlee.

Let us send you data to prove our claims.

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You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you can do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H.—the dependable brand.

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We carry a complete line of high grade chemicals for the clay industry

"State and federal departments of agriculture are handicapped in some phases of their work because of the general lack of fixed sources of reliable information with reference to the location, extent and character of under-drains. When generally available, this class of information will be helpful in determining more readily the relative merits, under varying conditions, of different systems of drainage and of different materials used in construction.

"Such information will be useful also in selling or in buying a farm, in attracting desirable renters or, from the standpoint of the renter, in selecting a desirable farm.

"The second 'don't' on page 498 of your March 4 issue, urges your readers to refrain from investing in a farm in the absence of reliable information regarding it. Surely it is of importance that complete information as to the under-drainage be obtained, yet we must rely principally for such information on the memory of man and on the truthfulness and accuracy of his representations.

"To meet this situation, and as a foundation on which to build for better drainage practice, the writer has proposed the enactment, in each state where under-drainage is used, of a law providing means for filing for public record, in the office of the county recorder, maps and other information covering in detail private drainage installations, the information to be accompanied by suitable affidavits attesting its correctness; the maps to be uniform as to scale and their information to conform to certain requirements, with suitable penalty for filing incorrect information with fraudulent intent.

"It is not proposed to make the filing of any map compulsory. The advantages offered to the land owner will be sufficient to bring about a general utilization of the system without any legal compulsion.

"The writer perfected this plan in 1914, shortly before taking up his present sales promotion work. He has discussed it with a number of prominent and influential men and has yet to hear the first suggestion of any objectionable features. Such men as Professor A. D. Wilson, W. E. Morris, Oren E. Taft, M. Prindiville, etc., whose signatures you will find on the enclosed letters, have given it their endorsement.

"A few comparatively small organizations have taken up the idea and are making some rather disconnected efforts along the lines indicated, but their work is somewhat localized and, while they are showing progress, what the proposition needs, and in the opinion of the writer merits, is the support of your good paper.

"If you desire more information it will be furnished gladly, or, at your suggestion, manuscript covering the subject fully for publication will be forwarded for your consideration."

The above letter was written on March 15 of this year. On March 23 the editors of the "Country Gentleman" replied as follows:

"We have your letter of March 15 with enclosed letters which we return as you request.

"Your proposal is interesting and we shall be glad to comment on it editorially. We shall be glad to see a copy of the bill which you propose for the Minnesota legislature."

It will be noted from the above that the subject is of a nature to interest even the highest class of farm paper. If the "Country Gentleman" will support the movement it may be expected that other leading publications of the kind will also help boost it along.

It is apparent that the entire proposition of tile drainage will receive a great deal of valuable publicity from the discussions of the proposed legislation in farm papers and that the country papers also will give considerable space to the subject. To produce a corresponding impression on the public by the use of paid advertising space would require the expenditure of thousands of dollars by drain-tile manufacturers, and might be impossible at any price.

If the proposition is handled along correct lines the legitimate free publicity alone which will result from the proposed movement will be worth to the industry much more than the total cost of the campaign.

LEGISLATORS FAVOR THE FARMER

Both state and national legislatures are fully alive to the importance of enacting such laws as will help the farmer to solve his problems. Members of state bodies with whom the writer has talked, without exception, have expressed their approval of the drainage record idea. With an active and competent organization working for the enactment of these laws there will be no serious difficulty experienced in handling the legislative end so as to insure proper introduction and unprejudiced consideration of the subject.

Obviously, it would be unwise to permit any premature presentation of the idea to the lawmakers, or to precipitate a general discussion among them before an organization is perfected for directing effort and thought along lines which will lead to the best possible results. The opportunity must not be muddled by permitting half considered legislation to crystallize into defective or ineffective law.

The writer has been holding back publicity and has been conserving the enthusiasm of legislators pending the organization of a bureau to direct a well considered and intelligent campaign for the desired laws. No further information has been furnished the "Country Gentleman," and compliance with requests for articles explaining the plan in detail has been deferred.

Thru an organization to direct the impulse which will be started by giving general and detailed publicity to the recording plan, this impulse may be accentuated and amplified into a great educational movement which will so sustain and equalize demand that opportunities for improving operating conditions in the drain-tile industry will be opened along many lines.

Just as a farm drainage system pays for itself thru increases in income, the expense of this work will be returned many fold to the drain-tile manufacturer thru a larger volume of sales at increased prices. An effective organization may be perfected promptly by co-operation on the part of state associations and their members, and on a basis that will insure equitable distribution of both expense and benefits.

The expense need not be high enough to impose any appreciable burden, even temporarily, on any manufacturer, and benefits should easily outrun expense shortly after operations are under way.

A plan of organization will be submitted in the next article.

GOVERNMENT
and
BUSINESS

(*Continued from Page* 38.)

COST ACCOUNTING

A preliminary study of industry generally, made by the Federal Trade Commission, has revealed the fact that only a very small percentage of the manufacturers of the country make any charge for depreciation of building plant equipment, or seasonable merchandise, and that their products were priced and their profits determined before reckoning *this* vital and important item.

Gandy
Wears Longer and
Costs Less

"HAVE used it for years, and to my sorrow and expense was once induced to purchase one of the 'just as good but cheaper' belts, with the result that this imitation belt only lasted me 108 days as against 487 days' service obtained from the genuine Gandy."

The letter tells of increased service from Gandy Stitched Cotton Duck Belting.

In addition to the extra wear it gives, you should use Gandy Belting for the further reason that it is cheaper than other types of belting—its cost being about one-third that of leather and about 25% cheaper than rubber.

It is proof against oil, water, dust, heat, gas or steam. It is guaranteed as to material, workmanship, uniformity and service, and is backed by 39 years of successful manufacturing experience and the thousands of belts now in satisfactory use.

If you are in need of a belt, any size, for any purpose, write us for the prices and samples.

Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

You Say You Can't Meet Competition?

There's No Money In the Brick or Tile Business?

Don't you believe it for one minute—you **can** make money—you **can** meet competition—but you **can't** do either by cutting your selling prices. There's one safe way—cut your burning costs by installing the

HOOK SYSTEM
OF
KILN BURNING

There isn't any magic about this system that has worked such wonders for brick and tile manufacturers—it's simply a sensible and practical application of modern ideas accepted by men who have made a life long study of clay ware burning.

The Hook System can be applied to your present kilns.

Why don't you find out what we can do for you?

We furnish Kiln Bands and Grate Bars for all types of Kilns

Hook Patent Kiln Co.
Vigo, Ohio

Canadian Office
250 Dufferin Street, Toronto, Ontario

DEPRECIATION

The Trade Commission is urging on every business man the absolute necessity of making proper provision for depreciation and doing it monthly or at least quarterly. I think I can safely say that no accounting system will receive the endorsement of the Commission unless it does provide for the inclusion of this most important item of cost.

Statistics show that the percentage of business men who do not provide for depreciation is very large, running over fifty per cent., and this is one of the causes *that has a great influence* on the business death rate. Nearly every man is perfectly willing to include in his cost all items for which he pays out actual money, but he is inclined to overlook those which do not require a visible outlay, and depreciation is one of these which unquestionably exists. Many manufacturers and merchants do not charge *any* depreciation and give as a reason that they keep their plant and stock in first-class condition. This is one of the most erroneous ideas in business today. Every machine, building, and apparatus as well as seasonable merchandise, *like every man,* has a certain period of life and no matter how much care is taken or how much medicine you give the man, death is bound to come.

If the Federal Trade Commission and the Associated Advertising Clubs of the World do nothing more than arouse the American business man to the fact that depreciation does exist, that it is an element of cost, and that he should put it into cost, the time will have been well spent and business generally will have received a benefit.

UNIFORMITY IN ACCOUNTING METHODS

The subject of more uniformity in cost finding is at present receiving the careful attention of many manufacturers and trade associations. A number of trade associations are in this way achieving marked success in strengthening their industries. It is being demonstrated that a knowledge of cost determined by a uniform practice can improve trade conditions to a remarkable degree. By a uniform practice I mean a common classification of costs, both manufacturing and selling, a uniform method of providing for depreciation with rates more or less standardized. Where this condition exists, production statistics which are comparable and which will inform and guide the whole industry are obtainable. Manufacturers and merchants can then talk the same language and will be in a position to profit by each others' experience, to conduct their plants more efficiently, *and to establish prices more intelligently.*

DANGERS IN LACK OF ADEQUATE COST METHODS

For example, take two manufacturers, say Jones and Brown. They are in the same line of business and bank with the *same banker.* Jones keeps an accurate cost accounting system, charges off liberally for depreciation on his buildings, machinery, etc. He charges his jigs, tools, dies and patterns against the cost of operation every month or at least every quarter. His overhead is distributed equally and fairly. He quotes a fair price on his product and his customers recognize that they are getting value received. He has a large bank account and is considered a conservative and substantial business man. *Brown,* his competitor, on the contrary, does not keep a cost accounting system; does not charge off for depreciation except a small amount at the end of each year. Brown maintains that his buildings and machinery are very near as good as they were ten years ago. He charges his jigs, tools, dies and patterns to capital account and considers them valuable assets. He figures that he has been *quite liberal* when charging off ten per cent. for depreciation *on these items at the end* of the year. He is a heavy borrower at the bank and *the banker* is probably loaning him the money *that Jones,* his competitor, has on deposit. This furnishes Brown working capital *to do what?* To continue to run his business in a *slip-shod, slovenly manner,* to cut prices and ruin the industry in which they are *both engaged.*

Ignorant competition is most dangerous to the development and success of our country. The Clayton Act and the Federal Trade Commission Act have no control over this menace. It is estimated that ninety per cent. of the manufacturers and merchants in Germany know absolutely what their goods cost to manufacture and sell. If you compare our figures, which show, according to estimates, that only ten per cent. of our manufacturers and merchants know what it costs to manufacture and sell their products, *you have the answer* as to why Germany has been so successful in developing such a high standard of efficiency in manufacturing and distributing their products *not only in Germany* but in the markets of the world.

It is a fact well understood among business men that the general demoralization in a large number of industries has been caused by firms who cut prices not knowing what their goods actually cost to manufacture; the cost of selling also, which is equally important, is almost wholly lost sight of. Are the officers of the companies and firms who are cutting prices right and left, irrespective of their costs, *fair to their customers, stockholders, or competitors?*

Quality and service are becoming greater in the field of merchandising. Long after the price of a product is forgotten the *quality of that product is remembered.*

ACCOUNTING AMONG SMALL RETAILERS

The Associated Advertising Clubs of the World have taken keen interest in the welfare of the small retailer. The Federal Trade Commission has found them ready and willing to co-operate with us in an endeavor to solve the problem of efficient merchandising.

The distribution of our food products, particularly by the retailer, has an important bearing on the high cost of living and any effort that is put forth to work out this problem in an economic way will benefit the people as a whole.

In co-operation with your organization, the Federal Trade Commission will mail within the next thirty days to every manufacturer and retail merchant in the United States a booklet outlining the correct way of keeping his accounts. If the suggestions of the Commission are followed, the manufacturer and retailer will know what it costs him to manufacture and sell his goods.

One of the difficulties with our manufacturers and merchants today is that they may be manufacturing or selling, say, six different products and making a profit on three of them, but on the other three losing money. Every article sold should share its percentage of overhead, executive, accounting and selling expenses. It is the only safe way to conduct a business. To reduce your overhead per unit of sales by handling a large volume of goods, on a part of which you are losing money, is not good business practice.

This method of doing business causes competitors to fail; particularly small merchants and manufacturers, who have to compete with those who are making a substantial percentage of profit on part of their line and are competing unfairly with another line by cutting and demoralizing prices.

Each article should bear its proportionate share of expense and yield a reasonable profit. The enormous financial death rate of retail merchants shows the necessity for something helpful to this large class of our business men. Competition

The
"I-RITE"
Temperatures at Sight
PYROMETER
Patent Applied for
Mechanically Perfect Eye for Measurement of Temperature

The "I-RITE" accurately measures the temperature of the BRICK in any part of the kiln.

The "I-RITE" can as advantageously be used by the burners as the plant manager.

The "I-RITE" is portable and its handiness should make its use universal.

Gibb Instrument Co.
Highland Bldg. Pittsburgh, Penna.

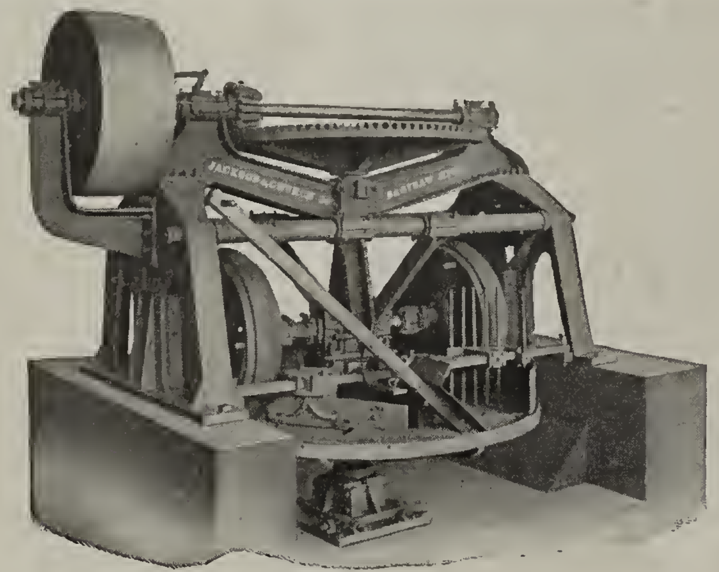
Price $25.00
SPECIAL INTRODUCTORY OFFER
Indicate range and number of instruments

Date..........

We hereby agree to accept from the Gibb Instrument Co. .... "I-RITE" pyrometers, Range 1000F to 1800F, 1700F to 2600F ,which we will use for five days. If we are not satisfied with the "I-RITE" we will return same for full credit and be under no further obligation. If satisfactory we agree to pay to the Gibb Instrument Co. twenty-five ($25.00) dollars, terms cash, for each instrument.

Name and Title..........
Firm..........
Address..........

SAY I SAW IT IN BRICK AND CLAY RECORD



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

in merchandising is becoming more and more keen. Practically no retailer can remain in business for a long period if his business is not conducted efficiently.

It is an encouraging sign of the times that an organization like yours is devoting time, energy and money to assist the small merchant to improve his bookkeeping methods. This is a great piece of constructive work that will reflect credit on each and every member of your associated clubs.

ACCOUNTING ESSENTIAL TO PROGRESS

Government has complained about business. Business men have complained of the attitude of the Government toward business. Whatever justification there may have been in the past for such complaints, today there is a better understanding between government and business. Since better methods usually begin with better methods of cost accounting, scientific cost keeping becomes in a very definite sense the basis of our prosperity. The government, thru the Federal Trade Commission, by recommending the subject of costs to the business men of the country at this time, and offering to aid in the actual development of proper cost systems, is endeavoring to do a constructive piece of work which is of the greatest importance. *The problems of credit and finance,* of foreign trade and unfair methods of competition, *and of labor and capital*—all will begin to solve themselves once the subject of costs receives on every hand the attention it rightfully deserves.

National Fire Protection Association Condemns Wooden Shingles in Latest Resolutions

The National Fire Protection Association, assembled in Chicago recently for its twentieth annual meeting, calls attention to the disastrous fires of the past few months which destroyed whole sections of cities in the South and elsewhere and which further emphasize the need for better building construction and the avoidance of wooden shingle roofs and other combustible materials in the exterior of buildings.

The Association heartily commends the growing movement for city planning as likely to produce better conditions as to building heights and congested areas, and provide the open spaces and broad avenues, which, beside their human and esthetic values, are excellent checks to sweeping fires.

In its warfare against the needless sacrifice of human lives and property by fire the Association advocates the following measures:

1. The adoption by municipalities of the Standard Building Code of the National Board of Fire Underwriters to the end that fire resistive building construction may be encouraged, the use of inflammable roof coverings prohibited, adequate exit facilities from buildings assured, and interiors so designed and fire-stopped as to make easy the extinguishment of fires therein.

2. The adoption by all states of minimum building requirements for the protection of state and county hospitals, asylums and similar institutions outside city limits of small communities in which the establishment and enforcement of a building code is impracticable.

3. The enactment by each state of the fire marshal law advocated by the Fire Marshals' Association of North America to the end that official investigation may be made of the causes of all fires, preventable fires may be eliminated by public education, and the crime of arson stamped out.

4. The adoption of the Association's suggested or-

dinance providing for the systematic inspection of all buildings by city fire marshals or local firemen to insure the vigorous enforcement of rules for cleanliness, good housekeeping, and the maintenance of safe and unobstructed exists, fire-fighting apparatus and other protective devices.

5. The enactment of ordinances similar to that of Cleveland, Ohio, fixing the cost of extinguishing preventable fires upon citizens disregarding fire prevention orders, and a more general legal recognition of the common law principle of personal liability for damage resulting from fires due to carelessness or neglect.

6. The wider general use of the automatic sprinkler as a fire extinguishing agent and life saver and the more general adoption of the fire division wall as an important life saving exit facility.

7. A careful study of the technical surveys of cities made by the engineers of the Committee on Fire Prevention of the National Board of Fire Underwriters covering the items of water supplies, their adequacy and reliability, fire department efficiency, fire alarm systems and conflagration hazards; and of the possibility of co-operation among neighboring cities thru mutual aid and the standardization of hose couplings.

8. The adoption of the Association's suggested laws and ordinances for state and municipal regulation of the transportation, storage and use of inflammable liquids and explosives.

9. The universal adoption and use of the safety match and legislation prohibiting smoking in all parts of factories, industrial and mercantile buildings except in such fireproof rooms as may be especially approved for the purpose by fire departments.

10. The education of children and the public generally in careful habits regarding the use of fire.

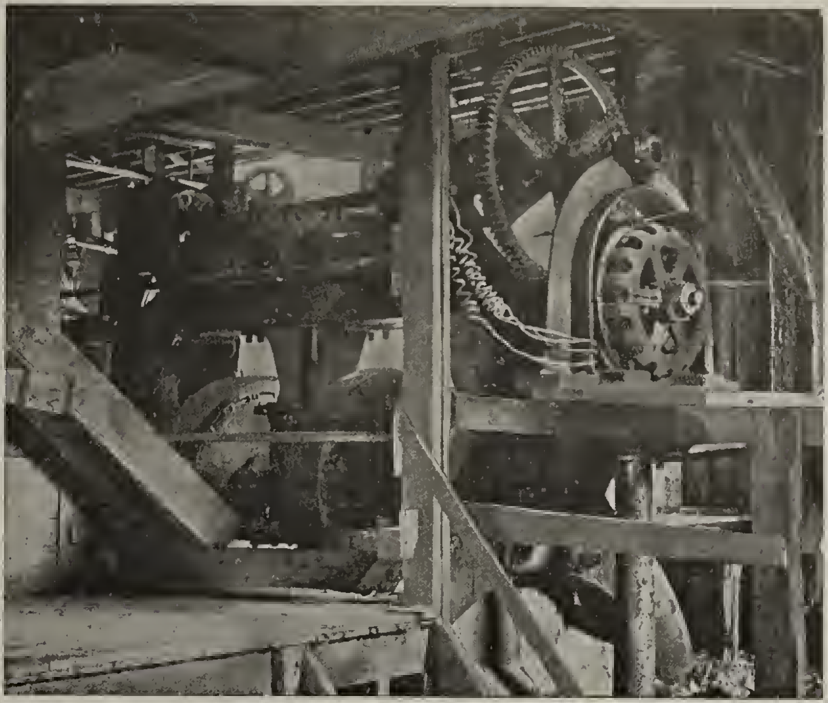
In the furtherance of these objects the Association asks for the co-operation of all citizens. Furthermore, to help in the dissemination of valuable literature and in the use of the standards of fire protection so carefully worked out by the Association's committees to the end that the lives and substance of our people shall not continue to be dissipated by a reckless and easily preventable waste.

South African Company to Undersell Europeans

A limited-liability company has been formed at Port Elizabeth, South Africa, to acquire the good will and to carry on and develop the business of an established tile and pottery work, together with a lease and purchase option on the property. The recently issued prospectus shows a proposed capitalization of £15,000 ($73,000) divided into 15,000 shares, 7,000 of which are offered for immediate subscription. Office quarters will be in Port Elizabeth and the factory in Grahamstown, both in the district of U. S. Consul E. A. Wakefield.

The company proposes to manufacture floor- and roofing-tile and building and fire-brick, and later to install machinery for producing glazed drain-tile. With the exception of the building brick, all of these products have formerly been supplied by French and English manufacturers. It is claimed that the available deposits of clay are equal to the best found at the European potteries.

The existing plant is said to be modern and to be working with a present output of 20,000 roofing-tile per month. With the extensions contemplated, the monthly output of this product alone will be 80,000.



Westinghouse Motor Driving Dry Pan

Are You Doing Something for Nothing?

Do you drive a long line shaft to operate a single machine? If so you are paying power bills for nothing.

Westinghouse Motor Drive

will enable you to increase your output—save transmission losses—prevents a tieup from line shaft bearing trouble.

It will pay you to investigate the possibilities of motor drive.

Send for Booklet 3072.

Westinghouse Electric & Mfg. Co.

East Pittsburgh, Pa.

Sales Offices in All Large Cities 367

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Drying Clays in Sixty Minutes*

In the manufacture of clay wares from plastic clay, calling for the admixture of water with the material, it is necessary for us to dry out this moisture before sending the ware to the kilns, otherwise we cannot expect to secure satisfactory and economical results in the burning.

While in some parts of the country the open air drier is preferred, the great majority of clayworkers for various reasons, employ an artificial or mechanical drier.

Owing to the great diversity in the physical characteristics of the various clays and shales, the drying treatment successfully accorded to ware made from one material would prove disastrous if applied to ware manufactured from some other material. Hence a drier to handle satisfactorily *any* clayware, must be so arranged as to permit of its being under perfect control at all times, as regards humidity, temperature and air movement.

Many different types of driers and drying systems—the result of much thought, study and experiment—have been introduced. Some of them possess considerable merit, and can be seen drying clay wares satisfactorily—as regards quality of ware—but the time required for the operation under any circumstances often seriously handicaps the clayworker's business.

There are many plants where the drying operations are not only slow, but are accompanied by great loss. In fact, the losses in ware, time, and output, and the troubles generally in connection with drying clay wares, are possibly greater than those in any other department of the business —not excepting the burning. In some cases, these losses have proven so serious as to render profitable operation of the plant impossible.

Now we know that the mechanically admixed water can be evaporated from the clay ware by the application of heat, and that the faster this evaporation takes place, the faster, naturally, the drying process will be completed.

With all the different methods that have been employed, there has never been any difficulty about the application of sufficient heat. The difficulty came, however, in applying this heat uniformly, so that there would be no unequal drying of the ware. In other words: if a high heat were applied on one portion of the ware, and on another a smaller quantity of heat reached the exposed surface, the product would warp or crack.

There has been no method of securing this *absolute* uniformity of heat, and at the same time applying enough heat to dry safely and rapidly, so it has been the custom with an idea of seeking to overcome these defects in drying, to apply the heat slowly—this gradual application to a certain extent accomplishing the purposes sought.

As in order to insure one point of economy—safe drying—a serious loss in time has to be reckoned with, the manufacturer of clay products will, naturally, be interested in any suggestion that he can secure a safe drying of his wares in the shortest possible time—or in a much shorter time than he now finds necessary to secure sound dry ware.

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*Read by Harold Copping, before the 35th Annual Convention of the Iowa Products Manufacturers Association, February 3-5, 1916.

The Proctor Automatic System of drying not only solves the problem of uniformity, so necessary for perfect drying, but it also solves the time element, so necessary to the profitable production of clay wares.

DESCRIPTION OF THE "PROCTOR" DRIER

The Proctor drier, manufactured by the Philadelphia (Pa.) Textile Machinery Company, is built of structural iron and steel. It is closed in with small removable panels—these panels are made up of two sheets of metal, with three layers of air-cell asbestos between for insulation. The panels are clamped in by wing nuts, making the entire interior of the drier readily accessible at all times. We all know the trouble experienced when repairs are necessary to steam piping and connections with some types of steam-pipe driers.

In the Proctor drier the coils are arranged either thru the center of the drier, or along the sides; the amount of piping being governed by the character of product and the quantity to be dried in a given time.

The fans, which are above the coils, for circulating the air, are composed entirely of iron and steel, being especially designed for the purpose, and are carefully balanced.

The drier is usually built with three separate compartments, so that three different temperatures and conditions can be obtained if desired, altho each drier is especially designed to handle the material which it is intended to dry.

With a three-compartment drier, there are four sets of flexible steel curtains, operated either by hand or power. When operated by hand, the attendant by turning a crank at one point, raises all four curtains simultaneously.

A car moving device, constructed of an endless chain, running down under each row of cars the entire length of the machine, with a special attachment link spaced equal distances apart, to engage into an attachment on the cars, is provided in this drier. An arrangement is also installed, by means of which the operator can move one line of cars thru the drier at a time.

The moisture is removed from the drier by means of small fans set above the drier; the moisture-laden air being drawn thru metal flues, arranged on the outside of the machine.

The air passes between the steam pipes and is drawn upwards towards the roof of the drier, the series of fans forcing it over into the drying chambers and causing it to circulate freely over *all* exposed portions of the ware. Altho the circulation is rapid, it is the same air over and over again, and its temperature is maintained by frequent visits to the steam pipes. This air being humid will not injure the ware.

The circulation in other driers is necessarily sluggish, and a great deal of present-day drier losses is due to heavy drafts of fresh hot air—which is greedy for moisture—throwing too severe a strain upon the ware, to say nothing of cost of heating this air. In some driers, where several tracks are in one compartment, irregular drying takes place. Say the drier for some reason or other has been pulled irregularly, some cars of ware are drier than others. The heat will follow the dry cars, is stagnant in places, and appears to shun the wetter cars. We find wet and dry cars on adjoining tracks in the drier and operations are retarded.

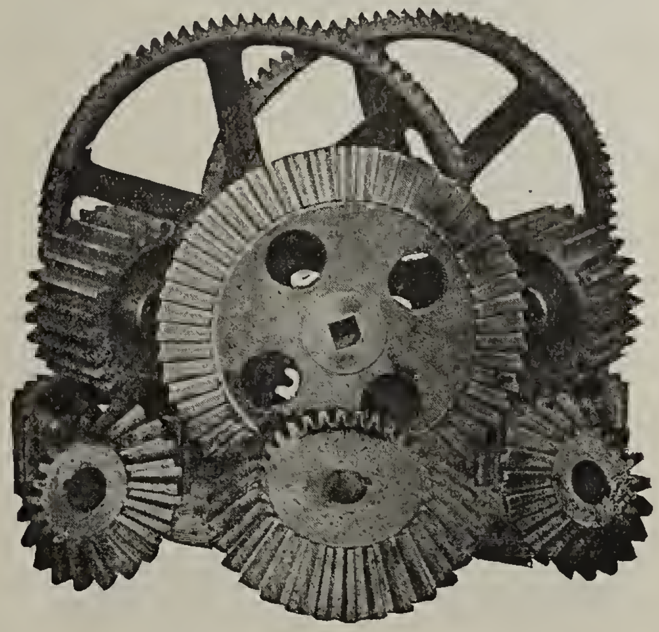
(*Continued in July 18 issue*)

Friction Clutches

Get out your pencil and figure the amount of time lost within the last month, that could be directly traceable to clutch trouble. Figure this in dollars and cents, in repair costs, in wages lost during idle time spent in

All good brick machines are equipped with

NUTTALL
Cut-Steel
GEARS



too many brick machines that are **otherwise** good do not measure up to expectations because they are made with cast tooth gears. If **your** machines are in the "otherwise" class go out and keep your eyes on the gears. It won't take you long to realize why you don't get all the capacity you expected, or why your power fuel costs are too high.

Change your present machines to cut steel gears—then insist on cut steel gears on future purchases, and you'll cut down power cost and repairs.

Ask us for Bulletin No. 19.

NUTTALL—PITTSBURGH

"Samson
Interlocking Tile"
Patented

In the above cut a construction of Samson Interlocking Tile is shown, which is the most modern form of construction for dry kilns, refrigerators and small residences, as it is almost impossible for moisture, heat, frost or sound to strike through walls built in this manner.

The construction on the left shows a wall commenced at 21 in. and reduced to 9 in. This is an exclusive feature of Samson Tile.

SAMSON INTERLOCKING TILE builds any thickness of walls without the use of other forms of tile, those and other exclusive features make this the most modern building material.

Three tests of SAMSON INTERLOCKING TILE, made at the University of Wisconsin, show respectively the following crushing strength: 1060, 1310 and 1040 lbs. per sq. in. This will give you some idea of the great load bearing capacity of "SAMSON INTERLOCKING TILE."

Write today for Manufacturing rights for unrepresented districts.

W. W. SMITH
Shallow Lake, Ont. Canada

waiting for operation to resume, in loss of ware that should have been produced, in other minor items that surely add to the total.

Multiply it all by twelve or a full year's running time, and the loss is stupendous. It is proof positive that you cannot afford to have any of the machines equipped with light, fragile clutches, and that a heavy, properly proportioned clutch is not only an economy, but it earns money. Friction Clutch Catalog No. 8 illustrates and describes the best in clutches. Send for it, to The Hill Clutch Company of Cleveland, Ohio.

Temperature Reading Made Easy

Many a superintendent and burner, too, who has watched an old-timer look thru the peep hole of a kiln and tell the temperature, has wished over and over for the ability to do the same thing. But the percentage of burners who can measure temperature by the eye with accuracy is so small as to make this method generally unsatisfactory. Yet the fact remains that it is quite essential to be able to know at every stage of the burning process exactly what the temperature is in any part of the kiln—not only at the top and bottom, but anywhere.

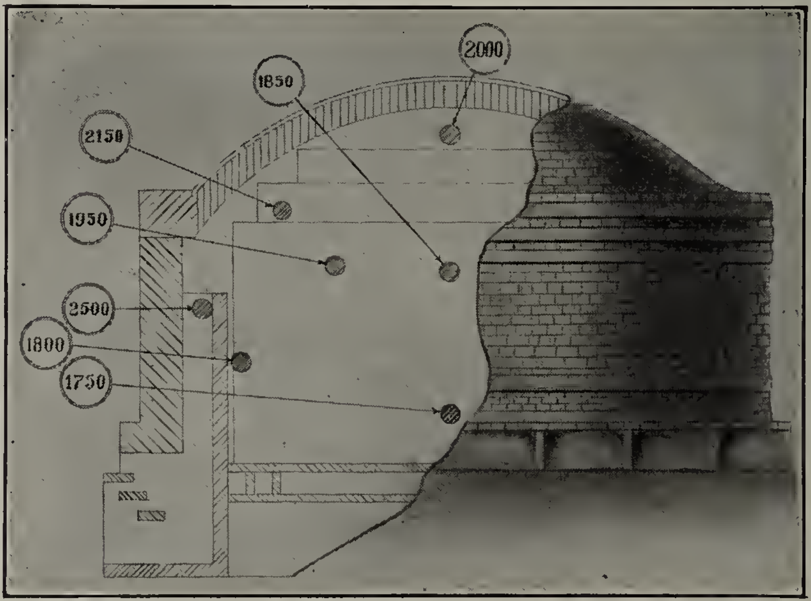
There's where the "I-RITE" Pyrometer comes to the rescue. With this remarkable little instrument, anyone, whether experienced in burning or not, can look into any part of a burning kiln and tell what the temperature is. While this instrument is new to the clay-products industry, it has, for quite a long time, been giving excellent results in the steel mills. So it is not an experiment, but rather a positive success.

The simplicity of the "I-RITE" instantly commends it, and its size permits one to carry it about in the pocket. It is only 8½ inches long. It cannot get out of order either, because of its construction. It combines accuracy, durability and low cost. The operation consists in passing a wedge, embodying the different intensities of color taken on by heated brick over a diffused light. The diffused light assists materially in differentiating between the intensities which are carefully standardized so that each intensity accurately represents a definite temperature.

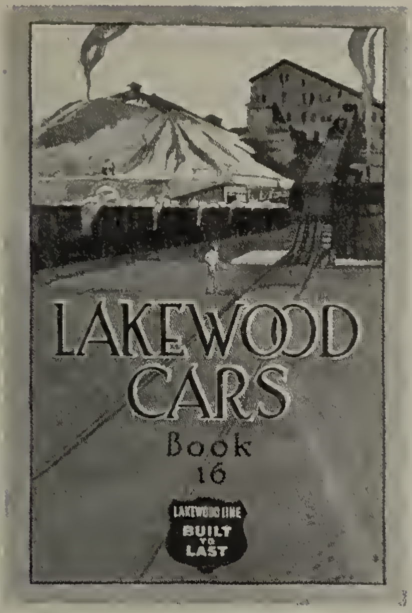
Even if you already have an electric pyrometer system installed you ought to use the "I-RITE"—you'll find it a big help. And its value to those who have no electric pyrometer system is incalculable. The "I-RITE" is manufactured and sold by the Gibb Instrument Company, Highland Building, Pittsburgh, Pa., and can be obtained on free trial of five days. They have these instruments to measure 1,000 to 1,800 degrees F and 1,700 to 2,600 degrees F.

A Guide to Belt Buying

Where is there a brick plant superintendent or mechanician who has not at some time had longing for the day when his belt troubles would be at an end? And many



Showing How the Temperature Varies in Different Parts of the Kiln



of them could recite some mighty interesting stories of the "arguments" of the purchasing agent whose eyesight was capable of seeing only cost — never service, which would mean less cost in the end. So much has been said and written about the folly of buying "any old belt" that it seems trite to remark as to the wisdom of selecting a good belt—one that has quality of the dependable kind. Yet this advice cannot be repeated too often.

In these days of stiff cotton prices and big wage demands, there has been a tendency to make the quality of belting suffer, and it is therefore more necessary than ever to be careful of your belt purchases. You might as well try to use a Ford truck to haul your product as to and slip—and soon go to pieces from the heavy duty imposed.

The only safe way to overcome such difficulties is to find out what make of belt is dependable—give it a trial in some particularly difficult part of you plant—then if it proves its worth stick to that brand, and you'll be able to forget your belt troubles.

The Hettrick Canvas Belt is one to rely on—it's a quality belt that will not slip because it "sticks," and it is giving remarkably fine service in scores of brick plants. It is certainly worthy of trial. It is made by Hettrick Bros. Company, Toledo, Ohio, who will gladly send samples and prices. Write them.

The Lasting Lakewood Line

"Built to Last" is merely a byword with most concerns who use the phrase, but not so with the Lakewood Engineering Company of Cleveland, Ohio. With them this phrase is a "buy-word" because their products are truly built to last.

This company specializes in industrial equipment, and being specialists, their time and thought for 18 years have been given to a study of cars, trucks and equipment most suited to each industry they serve. That's why they have gained such an enviable reputation among clay-products manufacturers in every section.

Their latest catalog—Book 16—is the most comprehensive compilation of data relative to cars and equipment that has ever been published. It is worthy of a place in every brick man's library, not only as a ready reference book but also as a guide to proper selection of the equipment best suited to each need.

The company will gladly send a copy of this book to any reader of "Brick and Clay Record" who requests it.

Bulletin 201 recently issued by Walter A. Zelnicker Supply Company, St. Louis, Mo., calls attention to a boiler bargain.

Are You Shopping in the General Store?
Displayed on its shelves are accessories that you need—at prices that you like.

One thing we know we have impressed upon clay products manufacturers is that we do not try to overwhelm them by superior selling ability.

We fully recognize our responsibilities and we endeavor in every instance to merely present facts and figures that make it easy for each inquirer to appreciate the real worth of the

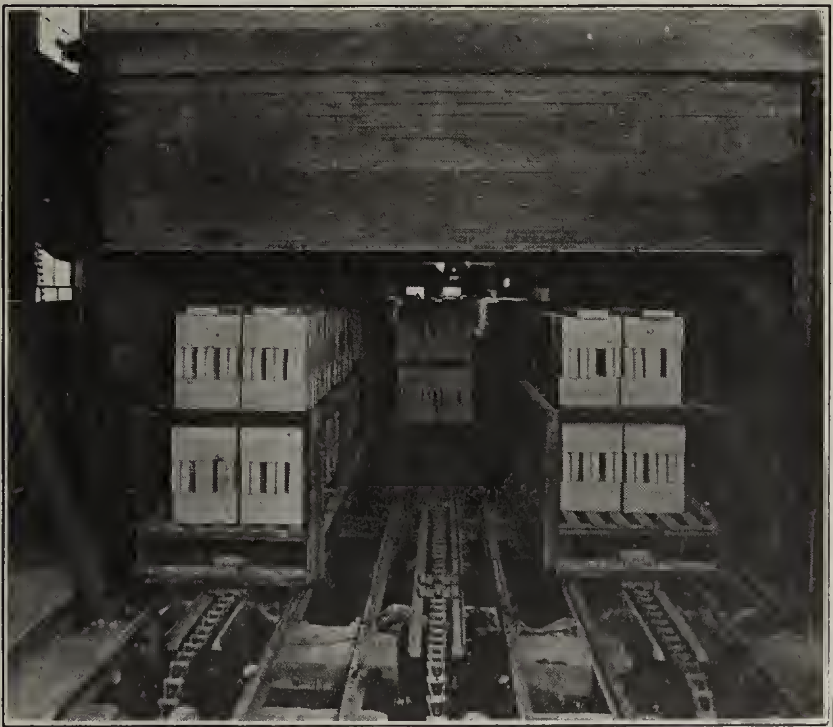
Proctor Automatic Dryer

We invite correspondence and investigation. Just ask us and we will put information and data in your hands for your guidance.

Also—one of our experts in clay products drying will be glad to talk matters over with you at your convenience, and help you to know why the Proctor Automatic Dryer is best suited to your needs.

Such mutual confidences cannot help but lead to mutually satisfactory results.

Philadelphia Textile Machinery Co.
Philadelphia, U. S. A. Hancock and Somerset Streets



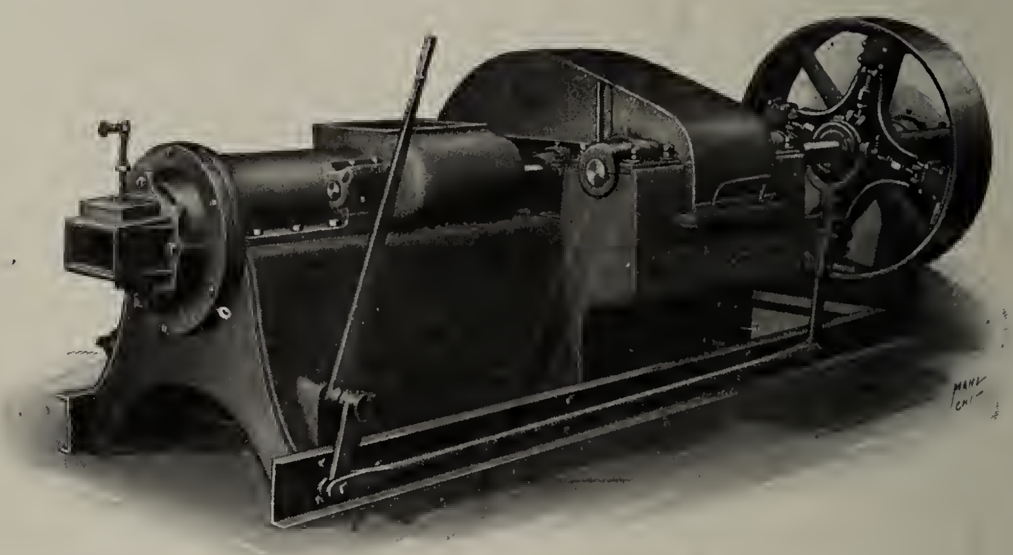
The Highest Quality in Clay Working Machinery

"The evening of the Fourth has come, But where is Willie's ear?"

The above extract from a newspaper indicates that Willie wasn't designed with a sufficient factor of safety to withstand unexpected shocks. In this respect the American boy and The American Machinery are in direct contrast because The American Machinery is designed to withstand unexpected shocks or overloads and to continue producing as though nothing had happened.

Here are two of the American designs that are recommended to the clay trade, not only by ourselves but by those who are using them.

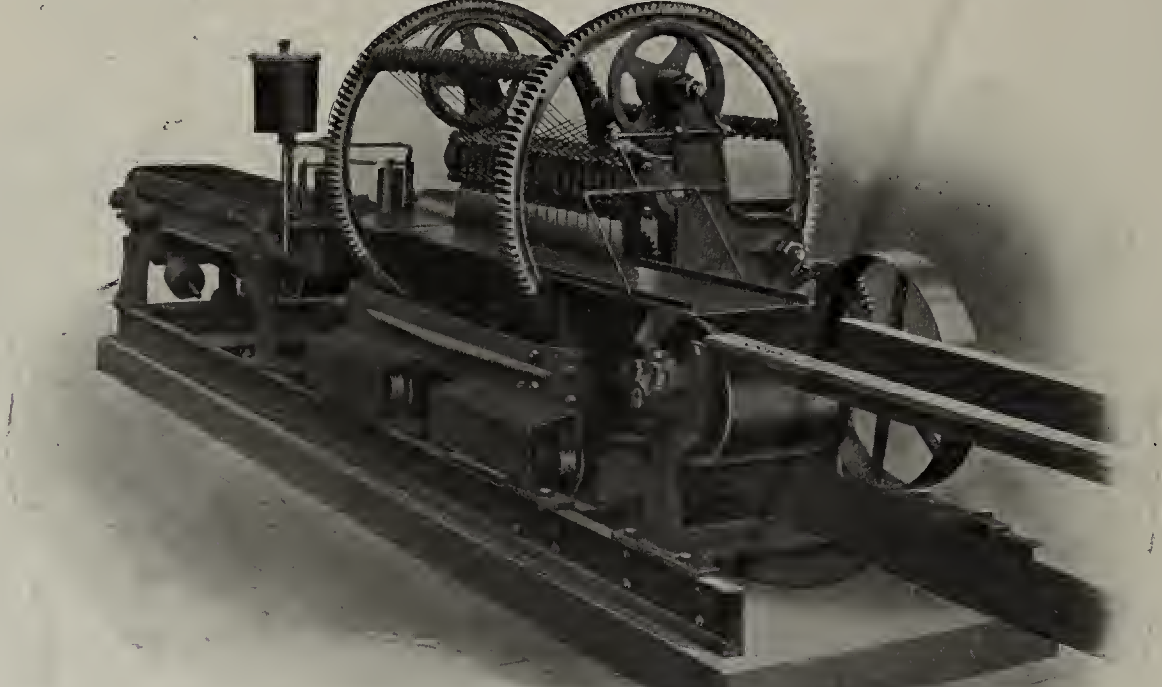
We, as builders, can tell you how they are built and what they ought to do but the users will tell you what they are doing from day to day.



American No. 233 Auger Machine

Give these machines that ordinary amount of attention that will insure oiling, tight bolts and alignment and they will perform to your entire satisfaction for years to come.

We will be pleased to send you the specifications on which these machines are built and you can see just why they do all and more than we promise.



American No. 342 Rotary Automatic Cutter

We build every machine and appliance required for the manufacture of every clay product. We will give careful attention to your inquiries no matter whether they are large or small.

Read the July issue of The American Clay Magazine. Yours for the asking.

The American Clay Machinery Co.

Bucyrus -- - Ohio

Much the Largest Manufacturers of Clay Working Machinery in the World

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

Comment, Criticism and Advice on Live Issues Affecting the Manufacture, Marketing and Manifold Uses of Burned Clay Products

IF THERE IS any branch of the clayworking industry that has never delved down into the possibilities of its market, it is that division composed of the drain-tile manufacturers. Sitting in an easy chair after lunch, some of the more progressive tilemakers have, no doubt, often dreamed of an Elysium where all farmers were following an intensive system of drainage, making the future of the drain-tile manufacturer one long, sweet song.

Have you ever had this experience, to be rudely awakened by a telephone message from the plant, stating that So-and-so was in again and that he would absolutely refuse to place his order for tile unless you came down a notch or two with your prices? Cruel, no doubt, but true.

Much has been said in the past regarding what could be done for the drain-tile business, if only it were promoted properly, but there was very little authoritative information and data showing what actually is being done in a very limited way to expand the market of the tilemaker and create a bigger demand for drain-tile, until the article on "A Glimpse Into the Future of the Drain Tile Business" was published in the June 6 issue of this magazine. We have been very glad of the privilege of placing these facts before the drain-tile manufacturer, but we trust that the matter will not end there.

In this issue, in another part of the magazine, is published the concluding installment of a series of articles by John W. Anderson covering an unselfish plan which he has in mind for putting the drain-tile business on the right road to success. He believes that by placing an adequate organization with sufficient funds to work, in back of the proposition that every state legislature pass laws to provide for the record of farm drainage improvement, that the movement will be productive of untold good for the tilemakers—and we believe he is right.

Regarding Mr. Anderson's plan, let's talk about it. Give it some publicity. See a friend who is in the drain-tile business and ask him what he thinks about it. Ask a few farmers for their views on the subject. You might write your farm paper about it, or see your banker and ask him if he thinks it will help his business with the farmer. He will undoubtedly say yes.

Above all, do not forget to write us, giving your views of the plan. We believe that everyone will be interested in what you have to say about it, and it only costs two cents for a stamp.

Insuring the Employe

WHILE you are lying awake nights, trying to think how you can keep all of the workmen you now have on the plant, and possibly, where you can get a few more to fill positions, the vacancy of which is causing you no small amount of worry, it might be well to read the announcement, on another page of this magazine, from a prominent fire-brick company to the effect that, on and after July 1, it proposes to protect the families or a designated party of each of its employes in case of death by insuring that employe with a reputable life insurance company.

While the idea is not entirely new—having been used by a number of concerns in other lines of business—it is somewhat of a stranger in the clayworking industry.

It is, in reality, a profit sharing plan, only in a different form from those with which we are most familiar. Instead of paying each employe an annual dividend, the size of which is governed by the length of time he has been in the service of the company, this share of the earnings is invested in life insurance, thus protecting the widows and orphans who are all too often neglected.

Labor is constantly agitating the point that without it capital would not exist. Without attempting to assume the role of a socialist to argue out the merits of this stand, let it be sufficient in this place to call our readers' attention to the fact that this idea of divided profits is fast spreading among the working class. It is particularly strong at this time when labor is growing alarmingly independent. This feeling should be recognized in employing men.

We are afraid that if some plants attempted to share their profits with their employes, the latter's share would require the aid of a microcope in determining its exact location on the palm. However, there are a great many plants that are making money these days, and it would seem that, in view of the many complaints that are coming from all sides regarding the difficulty of getting a sufficient number of workmen to operate clay plants, some plan like that adopted by the Chicago Retort and Fire Brick Company ought to prove helpful in solving the problem.

The "Know It All"

IT IS HARD to visit many clayworking plants and not find someone — superintendent, foreman or burner—who claims "to know it all," insofar as the science of turning raw clay into various shapes and forms of product is concerned.

However, it is only necessary to make a tour of inspection around the plant where the "wise one" holds forth in order to be convinced that he is fooling no one but himself regarding his store of knowledge and his ability to apply it in mastering the various problems that arise daily on the average plant.

"Pride goeth before destruction and a haughty spirit before a fall," comes from the pen of Solomon, who has an ages-old reputation for wisdom. This proverb might well be taken to heart by those who boast that they have nothing to learn.

There is another saying of ancient vintage, the sense of which is that a man is never too old to acquire knowledge.

It is only by tireless study of the experiences of others in your trade or calling, and a working out of these experiences for yourself, that a man can excel or even succeed in any line of endeavor. This applies to those who are a part of a clay plant organization, as well as to the doctor, lawyer or merchant.

Read, and learn from others by word of mouth, how things are done. Persist in your search for knowledge and pursuit of skill and you shall have your reward in greater responsibilities, which mean a higher position with a corresponding pecuniary recompense.

Hold Your Stock

LARGE PRODUCTION, while it sounds fine and is generally pleasing to talk about, still has its disadvantages, and we can say—with confidence of being borne out by those who have on their hands the task of disposing of this production and those who have met in competition with it—its evils.

One of these evils is the tendency, when the market slows up a bit, to sell the product without regard to price in every locality where there seems to be the slightest demand. The reason for this is obvious. Large production stands like a giant over the manufacturer who has a big plant, driving him on relentlessly to dispose of his ware at any sacrifice in order to turn over his capital so that he may continue to operate.

This is unfair competition to the clay products manufacturer into whose market such a one goes and cuts prices.

How can this condition be remedied? The manufacturer with the large production will tell you that it cannot be remedied. If it could he would have taken steps in that direction long ago.

Without entering into a discussion as to whether or not this contention will stand analysis, suffice it to say that today the situation bears a different aspect. There should no longer be any excuse for "dumping" paving-brick, face-brick, or any other clay product into the "other fellow's territory." Any manufacturer who has a large stock of finished ware on hand would do well to hold it, because the chances are that it was made by labor at a cheaper price than is now possible with wages ranging all the way from two to three dollars per day, with the vast majority of plants paying a figure that is about half way between.

If the demand does not seem to be quite up to normal and prices are not satisfactory, why ship out large quantities of material, eating big holes in the stock piles, when by holding on to it a little longer a handsome profit can be realized, repaying in ample measure for the interest on the capital tied up in such a stock?

Eliminate the Waste

WASTE is the enemy of more than one clay plant. It is often the power that turns the balance from the right to the wrong side of the ledger.

The ash pile of almost any plant using coal in direct-fired, periodic kilns is an infallible sign as to whether or not that particular plant is conserving or wasting its fuel by the amount of unburned carbon in the ashes. Nine cases out of ten, the evidence points to a big leak right in that department thru the use of faulty furnaces, poor firing or a wasteful method of burning. Altho the owner may pass this ash pile several times a day, it may never occur to him that it represents a certain amount of lost money that is big in the aggregate.

Another source of waste is in the power consumed in operating the various machines in converting the raw material into a finished product. On some of the open yards where there are anywhere from two to eight machines connected up to a long line shaft supported by antiquated bearings, the waste of power is criminal. If the manufacturer would only figure up in pounds of coal what it costs him to maintain such a wasteful system, he would be astounded at the loss thru unnecessary friction alone.

On the other hand, there are a few plants around the country where you will see a modern, up-to-the-minute power plant that produces electricity at a remarkably low cost —a much lower price than can be obtained from the central station. This electricity is delivered by wires to individual drive motors, thereby eliminating to a vast degree the loss in power consumed by a maze of shafting and pulleys.

Items such as these will bear looking into on the part of any clay plant owner. They may determine whether you are making or losing money.

On Saving Labor

OUR ATTENTION has been called to at least one plant which, during the past few weeks, has found it necessary to press its office force into service as workmen in the machine room and at other points in the process of manufacture, so short is the supply of labor.

This, it would seem, should be a warning to every plant owner that he begin immediately to give some thought and study to the installation of additional labor-saving devices and methods designed to accomplish the same amount of work with a reduction in the number of men required for that particular job.

Machines that reduce the labor cost are sometimes expensive in first cost and ways of eliminating a man are not always easy to find, but nothing will be gained by wringing the hands at the approach of trouble, nor will talking about it help much, unless the discussion be such that it will spur the participants into action.

The glass industry is a splendid example of what can be accomplished in the way of eliminating, in a large part, expensive labor and substituting machines for men, that are untiring in their service and to a high degree dependable.

It is a great question as to just what conditions will be when peace is signed in Europe. Some, who profess to know, declare that immigration to this country will be restricted, while others say that everyone who can get out of the debt-burdened countries across the sea will do so at almost any cost. Of course, the slowing up of operations at the munitions plants will release a large number of workmen.

But it does not seem as tho the labor situation will grow much better in the immediate future, and when it does take a turn for the better, it will be a gradual process.

In the meantime, prepare as best you can to get along with less men to operate your plant than in years gone by, when labor was plentiful and wages at a normal level.

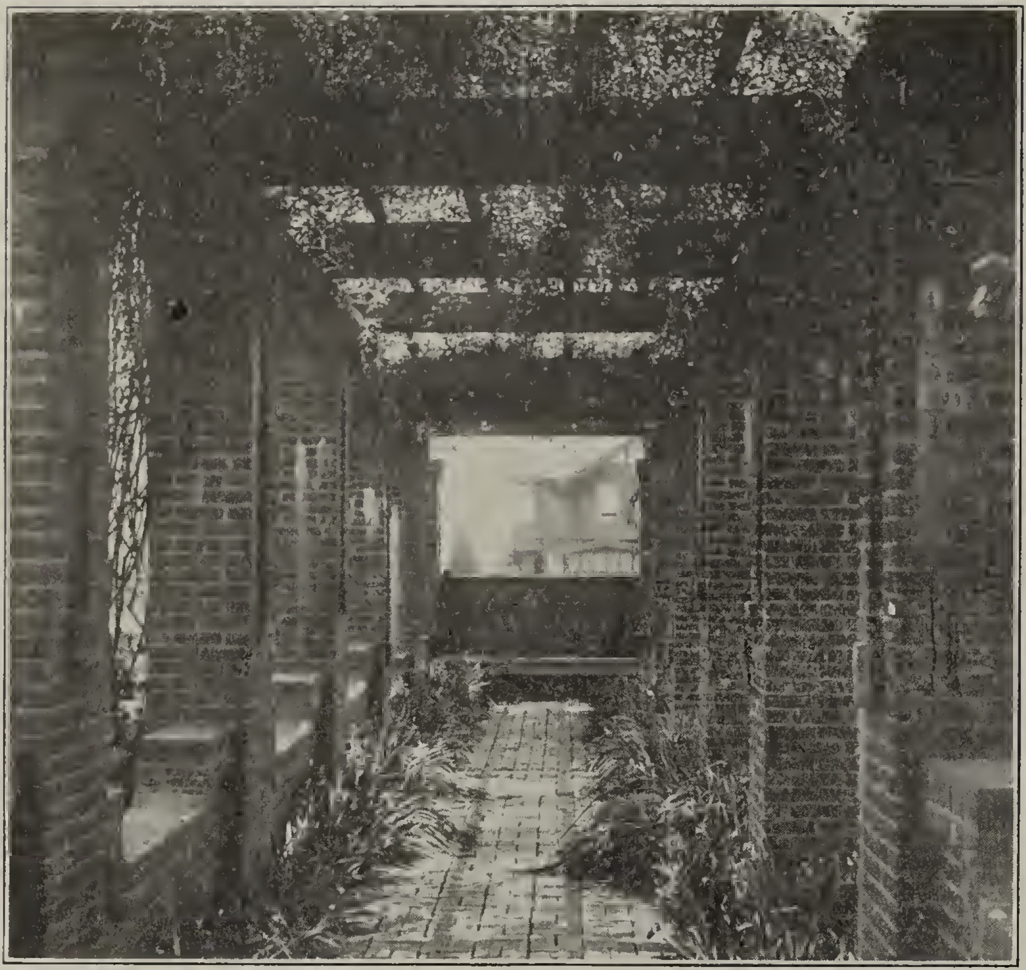


Fig. 1—A Pergola, Sheltering a Brick-paved Walk, That Leads to a Seat at the Farther End. The Brick Pillars, a Better View of Which Is Shown on the Opposite Page, Are of Interesting Design

BRICK *in* PERGOLA BUILDING

* * *

Wherein is Shown the Tendency of This Handsome Garden Accessory Toward the Best of all Building Materials

* * *

By Charles Alma Byers

THE PERGOLA, which the United States borrowed many years ago from Italy and southern Spain, is becoming an extremely popular garden feature in this country, especially during the past few years. It is particularly common with home builders in California, but wherever introduced it is quickly and justly recognized as a delightful garden accessory. Formerly, as in the lands of its nativity, it was used exclusively to provide shade or semi-shade for some garden path, but now we find it being employed also to create secluded nooks, summer-houses, to cover piazza areas, and for various other purposes. And for whatever purpose it may be used, it gives a most enhancing decorative touch to the grounds—comprising an accessory which is both useful and ornamental.

And as it comes to be more and more commonly adopted, it is but natural, perhaps, that the pergola should in the meantime be gradually reaching a higher stage of artistic development. It is also coming to be constructed of various kinds of building material, and it is gratifying that at last brick may be observed as frequently playing an important part therein. Pergolas are nearly always more or less decorated with vines, and no other material can be relied upon to constitute a more charming background for flowers and green, clinging vines than brick.

To show how really adaptable brick is for this purpose, attention is called to the accompanying illustrations.

Two of these photographs (Figs. 1 and 2) show different views of a pergola that covers a brick-paved walk, leading to a semi-secluded seat at the farther end. It extends outward from one end of the porch, and its starting point virtually forms a sort of porte-cochère for the automobile driveway. The porch and driveway, however, are elevated a few feet above the pergola path, and hence is necessitated a short flight of descending steps. The uprights or pillars of the pergola are constructed exclusively of brick, and are of rather massive proportions. Rectangular in design,

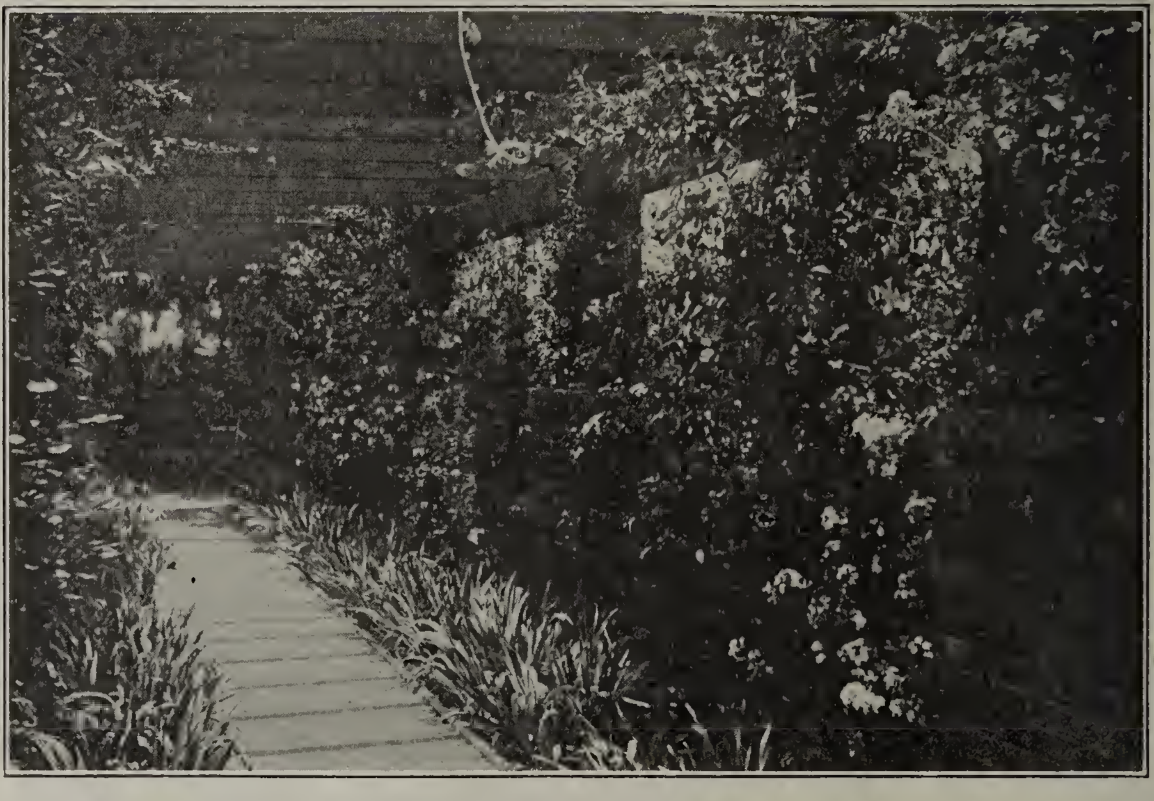


Fig. 3—A Low Brick Wall Intervenes Between the Brick Pillars—in the Case of This Pergola—Creating a Delightful Corridor and Helping in the Formation of a Screen for the Garden in the Rear

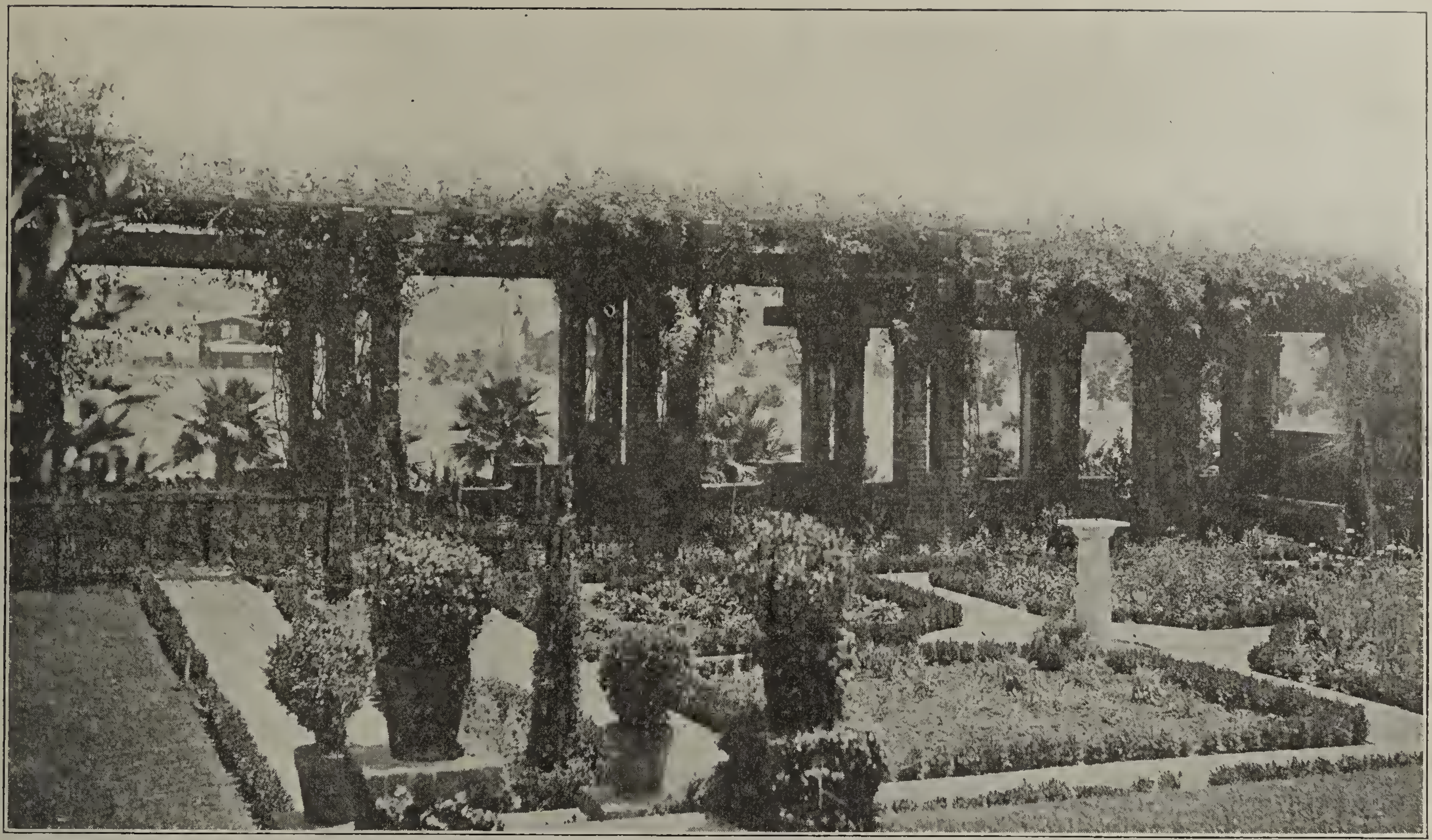


Fig. 2.—A Beautiful Garden Scene in California That Shows of What Great Value the Pergola Is as a Decorative Feature. Furthermore, the Material of Which This Particular One Is Built—Burned Clay—Is as Lasting as the Pyramids of Egypt

the pillars are built with an open panel, arched at the top, discernible from the side, which lends a somewhat artistic touch. A row of identically designed pillars extends along each side of the walk. The overhead framework consists of heavy, square-sawed timbers, painted a dark brown color. A row of flowers borders the walk on either side, and the uprights and crosspieces are covered with an artistic tracery of climbing rose-bushes. Plain red brick are used, and the walk is paved with brick of similar color. On the side opposite the street is a small sunken garden, with its paths also paved with brick, the whole effect being particularly attractive.

One of the other illustrations—Fig. 3—shows a view of a pergola that leads from one end of the front veranda of the house to a garden seat. In this case the walk is paved with red cement, but it also is bordered on either side with a row of flowers. Besides providing shelter for a garden path, this pergola is also planned to serve as a barrier between the street and the rear garden, and, to serve this purpose better, a low brick wall, about two and a half feet high, extends between each of the pillars on the street side. The uprights or pillars on this side are of brick to within about a foot of the top, and the row on the other side is of square-sawed timbers, set on brick bases. Rough-textured brick of a bright red shade are used, the timbers, including the crosspieces overhead, being painted a rich brown color. Over the wall is trained a rather profuse covering of dark green vines, which also helps to form the covering overhead, but the uprights of the other side are but sparsely decorated, permitting a charming view of the garden in the rear. The seat at the farther end comprises a very delightful retreat indeed, and is well protected from the sun and wind.

The last case in mind, the illustration of which has been omitted, presents a pergola of somewhat similar character, altho the uprights in this case are of brick exclusively. Between the pillars on one side of the walk is a brick wall about two feet in height, the pillars themselves being approximately eighteen inches square. The overhead framework is of square-sawed, undressed timbers, painted a dark shade of green. This pergola leads outward from a rear entrance of the house, and it terminates in a small summer-house, furnished with a long bench and some comfortable willow chairs. This summer-house is open on all four sides, but is covered with a shingled roof, making it an enjoyable retreat on either a rainy or a bright and sultry day. Both the walk and the summer-house are floored with white cement, and the uprights and crosspieces are decorated with close-clinging vines.

All of these are especially charming pergolas, and that brick may be successfully used for this purpose becomes convincingly evident from a study of the illustrations. The natural colors of the brick afford delightful contrast to the floral work, and at the same time tend to somewhat subdue and soften the outdoor light, making the retreats more enjoyable. There is also a richness about brick work in the garden that cannot be so satisfactorily produced by any other material. It is indeed gratifying to observe that brick are again coming back to rightful recognition in garden architecture. Brickmakers will do well to encourage this movement.

* * *

Large Attendance is Feature of New Jersey Clay Workers' Association Summer Meeting

Many discussions and addresses of supreme interest to the members marked to annual meeting of the New Jersey Clay Workers' Association on June 30. The meeting, which was held in the auditorium of the School of Industrial Arts, Trenton, N. J., was attended by more than two hundred men from all parts of the state.

The opening session was called to order by Charles Weelan of Trenton, president of the association. After a few introductory remarks, he introduced Herman A. Plusch of Perth Amboy, formerly connected with the Atlantic Terra Cotta Company, but now a consulting ceramic engineer. Mr. Plusch, who it will be remembered was recently honored by one of the first degrees in ceramics, given by Rutgers College, spoke on "Some Causes of the Disintegration of Terra Cotta and Brick and Allied Ceramic Materials, and Suggested Remedies."

Next on the program was an address by A. V. Bleininger of the United States Bureau of Standards, Pittsburgh, Pa. In his talk on "The Properties of Some European Bond Clays," Mr. Bleininger told of the clay industry in foreign countries that furnished some food for thought in the way of comparisons.

George A. Williams of the Department of Ceramics, Rutgers College, then told of "The Use of the Oxide of Tin in Glazes of Various Types," giving out considerable valuable information. Prof. Cullen W. Parmelee, also of the Department of Ceramics, Rutgers College, closed the speechmaking of the afternoon session with an address on "The Testing of New Jersey Clays and Some Results." Prof. Parmelee has recently made a careful study of the clay mined in the Raritan river and Trenton districts of New Jersey and his talk was highly interesting.

Several topics were brought up during the day for discussion among these being the following:

"Do We Pay Sufficient Attention to the Study of the Construction of Ceramic Ware, Particularly Sanitary Ware?"

"What Are the Requirements to Be Met by a Good Sanitary Ware Clay; by a Sagger Clay?"

"Sand Flint vs. Pebble Flint: Can the One Be Substituted for the Other in All Classes of Ware with Safety?"

"Can American Clays Be Satisfactorily Substituted for English Clays in the Manufacture of Electrical Porcelain."

The evening session, like that held during the day, was also largely attended. The first address was given by Prof. Edward Orton, Jr. His subject was "The Future of Ceramic Education in America." This session was closed with an address on "Suggestions Concerning the Future Development of the Ceramic Industry of the United States," by Herman C. Mueller, of the Mueller Mosaic Company, Trenton.

Examination for Associate Ceramic Chemist

Announcement has just been made at Washington, D. C., by the United States Civil Service Commission that an examination will be held on August 8 for associate ceramic chemist. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position at the Bureau of Standards, Pittsburgh, Pa., at a salary ranging from $2,000 to $2,500 a year.

The announcement states that the duties of the position will include laboratory investigations, original research and testing in connection with the technology of both clays and glass.

Competitors will be rated forty per cent. for general education and scientific training, forty per cent. for practical experience and fitness; and twenty per cent. for publications and thesis.

A degree in ceramic engineering from an institution of recognized standing, or courses in ceramic engineering equivalent, and at least three years' experience in the operation of ceramic plants is requisite for the position. A thoro knowledge of refractory clays is also necessary for the purpose of applying this knowledge to refractories.

Adopts Tentative Paving-brick Specifications

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, has returned from the convention of the American Society for Testing Materials at Atlantic City, June 27 to 30. Mr. Blair reports that a matter of chief interest to the brick people as regards the convention, was that the paving-brick specifications which the society had decided upon are to be printed in the record as tentative specifications. There were no changes made in the paving-brick specifications heretofore adopted. They will be placed under the heading of Committee 3C, American Society for Testing Materials; sub-head, "Brick Specifications."

NOTED SALESMANAGER MAKES NEW CONNECTION

Coming as a distinct surprise to those engaged in the manufacture and sale of face-brick, Carl C. Walters announces the severance of his connection with the Hocking Valley Products Company, Columbus, Ohio, where he held the position of salesmanager, to become general manager of the Fultonham Texture Brick Company of East Fultonham, Ohio.

CARL C. WALTERS

Mr. Walters, who has been identified with the clayworking industry for the past ten or twelve years, is a familiar figure to most brickmakers and, therefore, needs no introduction. He rose to his present position from the ranks, having had real experience in burning and as a plant superintendent—rare knowledge with the present-day salesman.

He was originally connected with the Hydraulic-Press Brick Company at Philadelphia, Brazil and St. Louis; with A. B. Meyer and Company of Indianapolis and then as salesmanager of the Hocking Valley Products Company, which position he assumed at the time that company was organized.

Having been associated so long with "Greendales" and "Rugs," it is going to be hard to dis-associate the trio. However, Mr. Walters has always been an energetic worker, so that it is to be expected that "Fultonham Textures" will soon have a good reputation in the building world.

Mr. Walters goes to East Fultonham to take charge on August 1. He will maintain his residence in Zanesville, Ohio, but his office will be located at the first mentioned point.

THROWING *the* SEARCHLIGHT *on the* CLAY PLANT PYROMETER

The Second of a Series of Articles in Which It Is Shown That There Is No Mystery About This Instrument for Measuring Kiln Temperatures

By C. O. Arbogust, Cr. E., and L. J. Sheridan

IT has been pointed out in the preceding installment that pyrometers today are enjoying a much greater popularity than ever before in the clay products industry. The defects that have in the past served to stigmatize the pyrometer as an unreliable instrument were shown to have been overcome, that an instrument has been evolved, from the pioneer pyrometers that made their appearance in the industry some ten or fifteen years ago, that can be depended upon to give an accurate and reliable reading of the temperature of a kiln under fire, providing sufficient care has been taken in the selection of the instrument and, after installation, it received the study and attention that is necessary to get results.

¶ This Article is not Difficult to Understand.

¶ It is a Lucid Description of the Working Parts of a Thermo-electric Pyrometer, Written in Terms That Any Man Can Comprehend.

¶ The Good and Bad Points Are Outlined in an Unprejudiced Fashion.

¶ This Article, Therefore, Should Enable You to Intelligently Select the Equipment Best Suited to Your Individual Conditions.

¶ And Lastly, You May See an Opportunity to Cut Costs and Secure Better Ware if You Are Conversant with at Least the Basic Principles of the Pyrometer as Applied to Clay Plant Practice.

While the number of installations has greatly increased and the standard of the instrument brought to a much superior plane than heretofore attained, yet considerable trouble is still experienced because a corresponding advancement has not been made by the operators. Despite the fact that their use is growing annually and their value to the industry remains no longer a matter of question, there still exists, even among a large portion of those using them, a very vague idea of "what makes it work."

There is no mystery in pyrometry—in fact, the principles and theory that govern its operation are so simple that there is no real reason why everyone interested in its use, from the manager and superintendent to the burner, should not thoroly understand the fundamental principles that underlie the operation and successful use of pyrometers.

This, then, is possibly the only remaining obstacle that stands in the way of its successful use, allowing, always, that the instrument is suitable to the prevailing conditions and designed for the kind of service in which it is to be placed. It is unquestionably a fact that a much greater degree of success would be realized from the use of these heat measuring instruments were the men who operate them better acquainted with the principles that govern their construction and operation.

In an effort to minimize this obstacle and to place the clayworking fraternity on a more solid footing as regards its knowledge of pyrometers, it is the purpose of this article to explain in a clear, uncompromising manner those principles that underlie the successful operation of a thermo-electric pyrometer, omitting as much as possible any decidedly technical discussion.

THE PARTS OF A PYROMETER

There are three fundamental units that enter into the construction of a pyrometer:

1—The couple, or thermo-electric element, that generates the current when heated.

2—The galvanometer which indicates or records the value of the current generated by the application of heat to the couple.

3—The leads, or wires, that carry the current from the couple to the galvanometer (including switches).

THE COUPLE

The first of these units, the couple, represents to the clayworker, by far the most important unit in the makeup of any thermo-electric pyrometer—it is the only source of electric current. The principle of the development of the electric current in the thermo-element, or couple, is that when any two dissimilar metals having a different electrical conductivity are joined together and heated at the junction, a difference of potential is created, causing an electric current to flow that varies in strength with the degree of the thermal difference between the hot and cold junctions. (By the hot junction is meant that point at which the two metals are joined for the purpose of being heated, while the cold junction is that point to which the lead wires that carry the current from the couple to the galvanometer are joined to the couple wires.)

In other words, this principle may be stated thus: *When two special metals are held in contact and the point of contact heated, a current of electricity is generated, and the strength of this current is directly proportional to the rise in temperature.* This fundamental phenomenon is the basis on which the thermo-electric pyrometer has been developed.

While it is true that the current of electricity is created by the heat applied to the junction of the two dissimilar metals, yet it is necessary, in order that this principle be of any practical value, that the increase of electromotive force be uniformly directly proportional to the increase in the temperature.

This, then, shows us that the selection of the metals that are to be used in the couple is an exceedingly important factor and should be exercised with the greatest of care. It also brings us to realize that there must be some definite and exacting requirements that a good couple must meet. These requirements, while only three in number, permit of little, if any, latitude; they are decidedly definite and due recognition of them limits our choice of metals. These requirements are:

1—That the thermo couples have a melting point well above that degree of temperature to which they are to be exposed.

2—That they have an ability to create an electromotive force that will increase uniformly with the increase in the temperature.

3—That, as near as is possible, the element be not effected by prolonged heating and produce a constant current thruout its life.

A recognition of these requirements is imperative, due to the fact that the temperatures are not only exceptionally high but they are *sustained* for a considerable period of time in burning clay products. Couples that would ordinarily give good results in determining high temperatures at intermittent and short periods of time, or constantly in low sustained temperatures fail in a comparatively short time when put to the usual clay plant work.

As already mentioned, there are comparatively few metals that meet all of these requirements, and of those that do, there are two classes: A—the base metal couples, and B—the rare metal couples.

THE BASE METAL COUPLE

In the discussion of base metal couples it may be said that they have for their upper limit the measurement of *sustained* temperatures that reach a maximum of approximately 1,700 degrees Fahr. They are composed of a number of different metals in combination. Some of these combinations are nickel and constantin, iron and constantin, nickel and iron, and nickel and chrome. The metal constantin is a mixture of nickel and copper and has a high specific resistance, a small temperature coefficient, and creates a large electromotive force, making it a desirable element for the measurement of low temperatures or where the couple is not a permanent fixture in the heat zone.

THE RARE METAL COUPLE

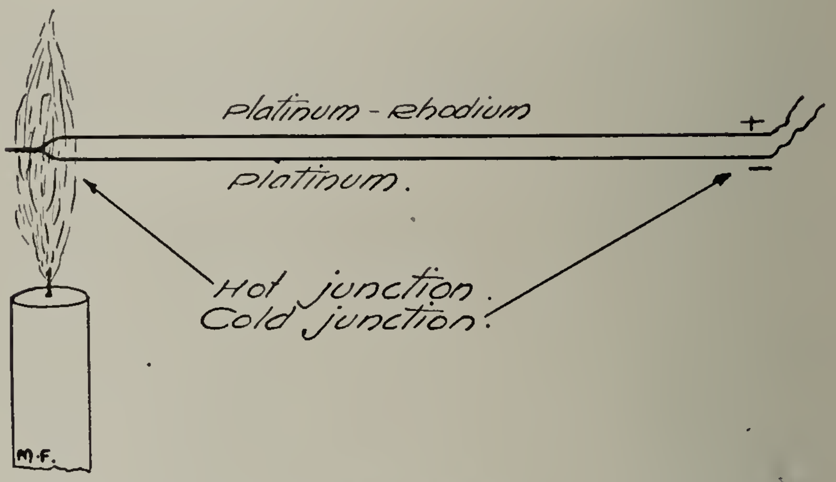
The rare metal couple usually consists of one wire of pure platinum and the other a mixture of ninety per cent. platinum and ten per cent. rhodium, and is what is known as the Le Chatelier element, since it was the Frenchman Le Chatelier, who first discovered that these metals when combined and heated produced an electromotive force that increases uniformly with the temperature and also met the other requirements of a thermo-electric couple. (All pyrometer firms furnish this couple.)

This combination has been found to be the most reliable couple for measuring the *high sustained* temperatures that are met with in the burning of clay products. The ability of the rare metal couple to withstand high sustained temperatures and deliver a relatively constant flow of electromotive force under kiln conditions has won for it distinct favor.

It is unfortunate that the initial cost of a rare metal couple is so comparatively high. This item of first cost, however, should not be taken into consideration, so small is its importance in comparison with that of having a comparatively long-lived and a reliable installation, yet it has proved a stumbling block to many of those who have already installed pyrometers.

It is the one big reason why so many of the older pyrometer installations are not giving satisfaction—they were chosen not to suit conditions but primarily on price consideration, consequently the couple deteriorated, produced erratic records, and soon burned out. This invariably produced a deep antagonism that actively exists even today.

Even when an effort was made to replace the couples as fast as they deteriorated, it was practically impossible to determine when the readings were wrong and therefore when to put in a new couple. This required constant careful attention and was fruitful of errors. Then, too, the upkeep on the cheaper installation soon exceeded the difference in the initial cost.



Couple Wires of a Pyrometer Bared, Showing Hot and Cold Junction, Together with the Manner In Which the Electro-Motive Force Is Created in the Wires

PROTECTING THE COUPLE

This is a very vital duty and too much emphasis cannot be placed upon its importance.

In considering the protection of the couple we may divide it into three sections: first, porcelain protection; second, quartz protection; third, fire-clay protection.

The Porcelain Protection. It must be of the non-porous type to be of value. It must be installed when the kiln is cold, *heated and cooled with the kiln.* It must be inspected regularly and removed the minute a crack, no matter how small, occurs. It must never be used for portable work, as sudden temperature changes cause cracks.

For stationary installation it has greater length of life than any other rare metal protection, altho it is always advisable to have extra porcelain tubes on hand so that they may be inserted immediately when a break occurs.

Quartz Protection. For portable work where an effort is being made to determine uniformity of temperature in various sections of the kiln and where momentary readings are desired, a quartz protection tube should be employed. While its length of life is not as great as porcelain, yet it has the advantage of having an exceedingly low coefficient of expansion and hence is not affected by sudden temperature changes.

In using, should a crack develop, it is just as necessary to discard it as in the case of porcelain, as it should be clearly remembered that the only value of protecting tubes is to prevent oxidation of the thermo-couple itself.

Fire-Clay Tube. This is used as a protection against rough usage. It encloses the inner tubes of porcelain or quartz.

Therefore to sum up, it has been found best to encase the wires in a non-porous porcelain, or quartz tube for portable work and on the outside of this, to place a much heavier fire-clay protector that fits over the porcelain encasement. The reason for using the fire-clay tube is to protect it against rough handling, as just a crack of infinitesimal proportion in the inner tube is sufficient to make it utterly useless for protective purposes, since the gases pass thru the very slightest openings and tend to quickly oxidize the metals of the couple unless checked. This action in time causes a weaker current to be produced with consequent errors in the temperature indications and finally results in the total destruction of the wires.

Altho the fire-clay tube is of good size and capable of resisting hard usage it is entirely advisable to shield it as much as possible from the weather.

THE COLD JUNCTION ERROR

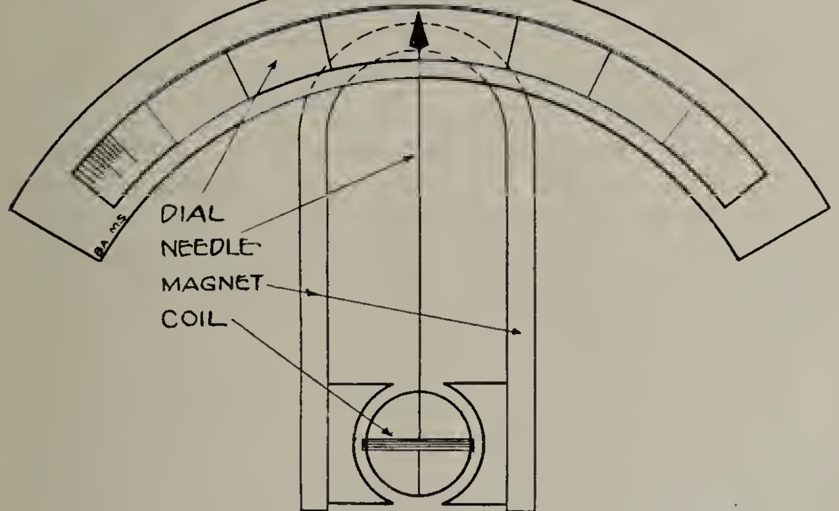
Having discussed the couple and its upkeep from the standpoint of its composition, it is important that that part of the couple to which the lead wires are attached and which is known as the cold junction, be considered next. In stating the principle of the couple and the reason for the creation of the small current, it was said that the electromotive force was due to the difference in temperature between the hot and the cold junction of the thermo element.

This being the case, it is evident that any fluctuations in the temperature at the cold junction (located usually just outside the kiln wall at the place where the couple is inserted) above or below the temperature at which the instrument is calibrated will influence the reading of the galvanometer, an increase in this temperature causing a lower reading and a decrease causing a higher reading that is correct.

It is usually the case that the installations are calibrated by the makers at a temperature of 75 degrees Fahr. Therefore, in actual operation, when the cold junction has a temperature of just 75 degrees Fahr. the instruments give true readings.

For example: Assume that the couple is inserted in a kiln which has reached a temperature of 2,000 degrees Fahr. and a temperature of 75 degrees Fahr. exists outside of the kiln. The difference between the hot and cold junctions is 1,925 degrees Fahr. and therefore a current of electricity is generated which we may assume to be 12 millivolts. This current actuates the indicator and the needle swings to that point on the scale corresponding to 12 millivolts, but here we find marked 2,000 degrees Fahr. which corresponds in degrees to the strength of the currents generated. This is the correct temperature, providing, as noted above, that the instruments have been calibrated for 75 degrees Fahr.

If now the cold end temperature due to sun and radiation from the kiln reaches 115 degrees Fahr. the difference in temperature between the hot and the cold end is only 1,885 degrees Fahr. instead of 1,925 degrees Fahr., and consequently a smaller current is generated that is less in proportion to the lessened difference in temperature. The error, therefore, is 40 degrees, causing the indicator to read 1,960 degrees Fahr. while the kiln is still at a temperature of 2,000 degrees Fahr. Therefore, in order that a correct determination of the temperature be made, it is necessary to make calculation for error or provision in the instrument for cold junction temperature fluctuations.



Line Drawing of Galvanometer Showing Position of the Parts

This provision has been taken care of by a device that forms a part of the equipment. In most cases it is only necessary to operate a screw attachment on the instruments, causing it to start to read, on the scale, from whatever temperature is prevailing at the cold junction, and hence, acquires a correct reading of the inside temperature of the kiln. In other cases, the provision takes the form of a compensating device that automatically compensates for the cold junction temperature.

In case neither of these appliances are on the instrument it is a simple matter to determine the correct temperature, regardless of the cold junction temperature, by dividing in half the difference between the cold junction temperature and the temperature of calibration and adding or subtracting the one-half to the reading of the galvanometer, in the case of the rare metal pyrometer, (for very accurate work), and applying the entire cold junction temperature difference to the galvanometer reading in the case of a base metal couple being used. The error is added if the operating temperature of the cold junction is less than the calibration temperature, and subtracted if it is above the calibration temperature.

(No methods of keeping the cold end of the couple at a constant temperature have been discussed, as it was considered unnecessary at this point.)

THE GALVANOMETER

Next to the thermo-couple in importance in the pyrometer installation applied to clay plant work is the millivolt meter, or galvanometer, the instrument that is used to measure the small electric current generated in the couple. This instrument, the scale of which has been calibrated to read in degrees of temperature in place of the millivolts of electric current, is made in two types, the suspension and the pivoted type, and varies in internal resistance from 5 to 1,200 ohms. Those instruments that have an internal resistance of less than approximately 200 ohms may be classed as low resistance instruments, altho by that term is usually meant an instrument that does not exceed 25 ohms internal resistance, and those instruments that have an internal resistance of from 200 ohms to 1,200 ohms (the highest resistance in practical use) are said to be high resistance instruments.

There are two general types of galvanometers or millivolt meters. First, the low resistance type, commonly used with base metal couples which have two jewel pivots; second, the high resistance galvanometer which has one point of support or bearing for the needle. This latter class is made in several types, the oldest type being that which has a coil hung on a fine thread or wire.

This type is exceedingly delicate and is liable to become disarranged thru rough handling or vibration and it must be carefully mounted on a level base. The more recent construction has one jewel bearing which supports the coil.

As to the high and low resistance instruments, there remains no question which will give the best service on a clay plant. An instrument that has at least an internal resistance of approximately 200 ohms is essential for successful operation. At the door of the low resistance instrument may be laid many of the failures of pyrometer installations, naturally causing a feeling of antipathy against the pyrometer to exist in many plants. To explain the reason why the internal resistance makes so much difference in the galvanometer, let us take into consideration some of the influences that affect it, chief among which are the lead wires.

LEADS

By the leads of the installation, as previously explained, is meant the wires that carry the current from the couple to the galvanometer. The galvanometer is always calibrated, before installation, for a definite lead wire resistance. It is this calibration that constitutes the source of error in a low resistance instrument, since any fluctuations in the original length create additional or less resistances that very seriously affects the readings of the instrument unless this lead resistance is known and wires of proper diameter selected to maintain it.

As an example of this, let us take the case of an instrument having 500 ohms internal resistance and calibrated for a certain length of lead. With an instrument having as high an internal resistance as this, an addition of 200 or 300 feet of wire will not cause any significant error. By adding 200 feet of No. 14 B. & S. gage copper wire, which has a resistance of but 0.005 ohm per double foot, we create an additional resistance of 200×0.005 or 1 ohm. This introduces in the reading of the instrument an error of only 0.2 per cent., which at 1,500 degrees Fahr. would mean that the instrument would read low by 3 degrees Fahr. This is, of course, a negligible amount. On the other hand, with an instrument having but 100 ohms internal resistance this error would amount to 15 degrees and with an instrument having 10 ohms as its internal resistance, the error would amount to 150 degrees, an error that would mean, at best, very unsatsifactory results.

This argument also holds true for the length of the thermo couple. It does not matter to any great extent if the length of the couple be changed, even to a material amount, if the instrument has a high internal resistance, but in the case of a low resistance instrument it is usually necessary that the couple be kept within 12 inches of its original length, as supplied by the manufacturer, for which the instrument has been calibrated.

CHECKING PYROMETER

The pyrometer should be frequently checked and it is desirable and advisable to have on hand a portable standard set for checking purposes. In addition to errors caused by deterioration of couple, inaccurate galvanometers, etc., the usual sort of error after installation is due to variation of the cold junction temperature, to dirty oxidized switches or plugs, and also to loose binding posts. The indicating instrument must not be near or hung on the hot kilns or where the temperature is excessive.

SUMMARY

So far all efforts have been directed towards a true and concise exposition of the theory and the sources of the possible errors of pyrometers. This in order that correct selections of equipment be possible, and after selection that it have intelligent supervision.

A summary of the general situation made by a man interested in the game serves admirably as an indirect summary of this chapter. He says: "There have been some manufacturers who have put in pyrometers and who have not benefited because they have not been properly installed. Others have tried to use cheap instruments which have become inaccurate. Others have only put in a partial equipment and have tried to use it everywhere at once. When pyrometers are put in they should be put in right. They are different from most other equipment used in a clay plant and are affected by conditions which one would ordinarily think of no importance. Good instruments properly installed have, however, proved their value in every instances."

The last sentence in particular has a punch that tells a big story and in the next following installment an effort will be made to show the practical application of pyrometers to clay plant work.

FIRE BRICK CONCERN INSURES EMPLOYES

A plan of usual interest and value to all manufacturers of clay products, whereby a stronger bond may be created between the employe and his employer—a situation not to be despised in these troublesome times of labor scarcity—is contained in the following bulletin, issued under date of July 1, by the Chicago Retort and Fire Brick Company of Ottawa, Ill., to its employes in the plant at that point:

To Our Employes:

Always having in mind your welfare, and the welfare of those dependent upon you, and your efforts to provide for their future needs, and also realizing the fact that the longer a man is in our employ the better able he should be to carry out his part in the interest of better manufacturing conditions and carefully made products, we have investigated and devised the plan outlined below:

Beginning July 1, 1916, we will give to each and every man or woman now on our payroll, who has been in our employ continuously for a period of thirty days or more, a *life insurance policy* in The Travelers Insurance Company of Hartford, Conn., which is one of the strongest and most reliable insurance companies in the United States.

Those who have been in our employ continuously for the period from thirty days to six months will receive an insurance policy for the amount of $250.

Those who have been in our employ continuously for the period from six months to one year will receive an insurance policy for the amount of $350.

Those who have been in our employ continuously for the period from one year to two years will receive an insurance policy for the amount of $500.

Those who have been in our employ continuously for a period of two years and over will receive an insurance policy for the amount of $750.

The premium on each policy is paid by this company, but the policy is subject to cancellation should the holder leave the employ of the company, except on account of sickness or accident.

No medical or physical examination will be required, it being only necessary for you to fill out and sign an ordinary application blank for this insurance.

An insurance policy, in the form of a certificate of insurance, will be issued to you, bearing your name, amount of your insurance and to whom you wish the amount paid in case of your death from any cause whatsoever.

This policy will in no way effect your rights under the compensation law.

We believe every man, who is a man, is especially desirous at all times to properly provide a means of livelihood for his family in the event of his unexpected death; therefore, you will readily realize the benefits of this voluntary provision to that end as an indication of our material interest in your behalf.

It is our purpose to re-insure you from year to year and the amount of insurance will be increased each year in accordance with the length of time you continuously have been in our employ, until the maximum amount of $750 is reached. Those having completed six months continuous employment will receive a new policy increased from $250 to $350, and so on according to the schedule outlined above.

We ask your co-operation in proving out the success of this plan.

One of the Gas-fired Continuous Kilns at the Alton Brick Company's Plant. It Will Be Noted That This Kiln Is Protected with a Steel Roof

EBEN RODGERS
Secretary and Treasurer, Alton Brick Company, and Recent Host to the Paving Brick Institute

"PAVERS" GATHER *in* SPITE *of* HEAT *to* LEARN *about* POWER

Model Plant of the Alton (Ill.) Brick Company Furnishes Practical Lesson to Members of Paving Brick Institute Who Meet to Study Electrical Drives

PROBLEMS ARISING from the scarcity of labor at many of the plants, and the attention required in taking care of a large influx of orders or the necessity of digging up some new business, all seemed to have a bad effect upon the second quarterly meeting of the Institute of Paving Brick Manufacturers, held at Alton, Ill., on July 12, for only twelve out of approximately seventy-five members came to inspect Eb. Rodgers' well-equipped plant and enjoy his hospitality.

Old Sol, however, was out in good force when the handful of faithfuls gathered in the lobby of the Illini Hotel on Wednesday morning, the day of the meeting. Alton is only thirty miles from St. Louis, which has a country-wide reputation for being the hottest place on earth during the summer, so the members came prepared for a warm reception—and they got it.

Two automobiles conveyed the party from the hotel to the plant of the Alton Brick Company, the inspection of which was scheduled to occupy the entire morning.

THE STAY-AT-HOMES MISSED SOMETHING GOOD

It might be said here that those who stayed away from this meeting certainly missed something worth while in not being able to go thru Mr. Rodgers' plant, for it certainly is a model of what every efficient clayworking factory ought to be.

The visitors were divided into two parties to inspect the plant, one being led by Harry Meyer, general superintendent of the Alton Brick Company, and the other by Mr. Rodgers. The shale pit is somewhat unusual from those seen on a great many plants. Three shovels are required to place the proper mixture of shale and surface clay in the cars that are hauled up to the grinding room. One steam shovel is engaged in stripping off the surface clay, while another digs the shale below. These two materials are then mixed by an electric shovel and placed into the waiting clay cars. The proportions of clay and shale used are thirty and seventy per cent. respectively, these quantities being accurately measured by the shovel.

From the pit to the grinding room, the cars are conveyed by means of an electric hoist, where three dry-pans reduce the material to an unusual fineness. From the pans, it is carried by means of belt conveyors and an elevator to a large double, steel storage receptacle, the two compartments or bins of which

They Stood on the Bridge at Mid-day. A Group of the Party Posing for the Camera Man, In Which George Orr, R. T. Stull and Eb. Rodgers Are Prominent Figures have a capacity of 300,000 paving blocks each. This storage represents a large investment but it is certainly worth the money, for it need never to be repaired, is amply strong and is thoroly fireproof. Another advantage is that it occupies but a minimum of space. The last link in the conveying machinery that places the ground clay and shale into storage, consists of an automatic belt tripper which distributes the material evenly over the bin. There are two of these trippers, one over each bin. Every bit of raw material that is used in this plant goes into storage first, the use of the two bins being alternated so that the plant is never without a supply of raw material.

The machine room is the usual one seen on modern paving-brick plants, one large molding machine being used with a battery of four represses. This plant makes both repressed and wire-cut-lug "pavers" and so is in a position to supply the demand for either.

BURNS PRODUCT IN GAS-FIRED CONTINUOUS KILNS

The kilns at this plant should be of special interest to our readers, inasmuch as we are just completing a long series of articles on the design and construction of continuous kilns, also their operation. There are two kilns, both of the gas-fired, continuous type, producer gas being used as fuel. They are covered with metal roofs as is shown in one of the accompanying illustrations. The larger kiln of the two has sixteen chambers with a capacity of 40,000 each, while the smaller kiln has fourteen chambers that hold 30,000 paving-brick each. The capacity of the plant is 60,000 blocks daily. In operation, a round is made of the sixteen chamber kiln every twenty-four days and the fourteen chamber kiln every sixteen days. There are no stacks in connection with these kilns, except very low ones thru which the gases can escape, as fans are used to supply the necessary draft. A special fan is employed for the operation of the water-smoking arrangement, the greatest possible use being made of every heat unit. There are two gas producers to each kiln. No steam jet is used with these producers but they are placed over a water basin which supplies sufficient steam from hot, falling clinkers to break the clinkers on the grates.

The Office of a Brickman Who Has Faith in His Calling. The Alton Brick Company Made Sure, In Erecting this Structure on Its Plant, That No One Would Have Any Grounds for Questioning Its Sincerity in Advocating Burned Clay Materials at Being Supreme for Building as Well as Road Work

A feature of the plant is its coal distributing system. All of the fuel used is unloaded at one point and distributed by means of overhead conveyors, hung high in the air, to the producers and to the power plant.

The plant, as was stated in the announcement of the meeting sent out to each member, is electrically driven thruout. The Alton Brick Company has one of the most modern, and best equipped power plants in the clay-working industry. The boiler room is a model of cleanliness and the last word in efficiency. The brickwork around the water tube boilers is a shining black, being coated at regular periods with pitch. Moving chain grates maintain an even fuel bed under the boilers, the ashes from these grates being blown into a pile on the outside of the plant by steam. Not a grimy, sweating fireman is to be seen at this power plant, the whole operation going on just as smoothly, quietly and tirelessly as the hum of the motors in the various parts of the works. A six hundred horsepower steam engine furnishes the power to generate the electricity during the day when the heavy load is on. During the night, and on Sunday, a two hundred and twenty-five horsepower engine is sufficient. The tall stack, usually inseparable from most power plants, is conspicuous by its absence at this plant, induced draft being used under the boilers.

But the crowning quality of this power plant is the low figure at which it produces electric current. Most brick plants using electricity for power usually pay about 1½ cents per kilowatt hour, while in some localities, it runs up to as high as three cents, and then down to as low as one cent, but the Alton Brick Company produces its current for $.0072 per kilowatt hour, figuring all costs, including twelve per cent. for depreciation on the equipment.

LUNCH WITH THE MAYOR OF ALTON

The inspection of the plant was followed by a ride to the Rock Springs Country Club where the party enjoyed a good lunch with Mayor Beall of Alton. There are few that will forget the Mayor, for he entertained the members for very nearly two hours with his interesting stories drawn from a wealth of experiences, both as a legislator in Springfield and in his present position.

The afternoon was spent in visiting the mammoth plant of the Illinois Glass Company at Alton, which, altho somewhat removed from the manufacture of paving-brick, is nevertheless closely allied with ceramic industry. This is the largest glass bottle plant in the world, having a daily capacity of a million bottles of all shapes and sizes. As an example of what highly efficient machinery and the application of scientific management can do for a factory, the Illinois Glass Company was well worth the time spent in inspecting its plant.

Producer gas is the dominating fuel used. With one or two minor exceptions, it is employed exclusively in firing the glass furnaces to a high temperature and the heating of the annealing ovens. Even the engines in the large electrical power plant of the company receive their power from producer gas, which is treated somewhat different for this purpose than the gas used in the furnaces and ovens.

This plant has worked out its labor problems to a nicety. Machines costing approximately sixteen thousand dollars each are used to manufacture the bottles. These machines suck up sufficient glass for each bottle as they revolve over an opening in the glass furnace, blow the bottles into a steel mold and cut off the neck, delivering the finished product to a workman who picks it off from the die with a pair of tongs at the rate of sixty-five small bottles a minute. This machine, it is understood, cost a half million dollars to perfect, but it eliminated the expensive glass blower who, in the old days, earned anywhere from ten to twenty dollars a day. So hot is the large room where these machines operate, that the men work an hour and then rest a half hour, never staying at one task more than a half hour at the time. That is, a man works at one job a half hour, at another for the succeeding thirty minutes and then rests for that period of time. This plant has an excellent bonus system of paying its employes according to the quantity of No. 1 bottles produced. A predetermined task has been set for each workman and if he or his gang is able to go beyond that standard, the men are paid according to the additional results which they accomplish. This system has been put to the test during the present year of labor scarcity. The company reports no trouble with its employes, altho the work is exceedingly disagreeable in the summer on account of the heat, and wages have not been advanced.

EVENING GIVEN OVER TO TALKS ON ELECTRICITY

As was announced, a business session was held in the evening at the Illini hotel, dinner being served first and then followed by a discussion on the use of electricity as power in the clay plant. R. W. Jackson, who is connected with a large electrical equipment company, lead the discussion, speaking on the elementary facts concerning electric motors and equipment, accompanying his remarks with stereopticon slides. Some time was also given over to the discussion of power rates.

Owing to the small attendance, the report of the cost accounting committee, which it was hoped would be read at this meeting, was not forthcoming, due undoubtedly to the fact that very few, if any, of the members of that committee were present. It is also probable that this committee is not quite ready to report. However, when it does, what it has to say will undoubtedly be of supreme interest.

ALTON HAS MANY MILES OF BRICK PAVING

In closing the account of this meeting, the fact should not be overlooked that somebody has been very busy in Alton and has accomplished some good work in the way of street and road improvements. The people of Alton—if the opinion of the Mayor is any criterion—are tired of experimenting with inadequate and transient types of paving and will turn to brick for a large part of their work in the future. Alton already has about thirty-five miles of brick paving in and around the city, some of which is from twenty-five to thirty years old and still in excellent condition. Those who have the paving work of the city in hand are not satisfied, however, with this excellent record, as new plans are constantly being made for the replacement of worn out pavements with new ones of vitrified brick, also the covering of some thorofares that have not as yet had the distinction of wearing a hard, durable surface of everlasting burned clay.

AMONG *the* POTTERIES

That American pottery manufacturers will be in a position to hold all new trade that has come to the different offices on account of the European war after the strife has ended, is now being admitted by some who are close in the confidence of large eastern importing houses. It has been pointed out that pottery workers in all European countries now at war will never again be in a position to work for the low wages they received before the war was declared. Numerous reasons for this are being advanced, paramount among which is the fact that the wage earner will be compelled to pay his share of a possible reconstruction tax, and that the manufacturers will also be compelled to pay more for raw materials. It is reasonable to believe that transportation charges will be along higher levels and, with a smaller number of merchant steamers in the trade, it will be harder to make shipments according to specifications. The opinion is also held that the cream of the pottery workers in the European countries have answered the call to the colors, and that their places have not been filled. This is causing the foreign potteries to work at present with reduced forces, and it will be some years before the normal number of skilled workers can be mustered. In the meantime, the American pottery manufacturer is securing a lot of business that formerly was handled by import houses, and where such lines have been installed it is not going to be an easy matter to supplant them. The kiln capacity of the United States has not been increased materially during the past fiscal year, and with increased business all plants have been operated fully, where sufficient skilled workers were available to man the shops. Unofficial strikes, shortage of gas and slow freight movements have caused dealers more or less annoyance, but these are conditions over which the manufacturers have no control. The future of the American pottery industry was never brighter. Orders are heavy, in fact some of the eastern Ohio and West Virginia potteries have sufficient business on file to operate at least four months, even if no more new business was booked in the meantime.

A number of general ware pottery manufacturers, who in March last announced that five per cent. would be added to the base of all invoices, have withdrawn that notice and reverted to former terms of trade discounts. In the meantime, however, these manufacturers have revised their selling lists, and the majority of all decorations has been advanced, in some instances, so it is reported, the advance being as much as twenty per cent. Other patterns have only been advanced five per cent. In the long run, however, the manufacturers, thru the revision of their selling lists on decorated ware, will receive more for their merchandise than when only the five per cent. was added to the base of invoices. Some of the American hotel china and china dinnerware lines have been advanced as much as thirty-three and one-third per cent. Buyers realize that manufacturing costs have advanced and, therefore, are content to pay the new advanced list. In fact a ten per cent. advance was anticipated last January on the semi-porcelain lines.

A new pottery industry is being planned for Belvidere, Ill., by Willis S. Brown of the Belvidere Screw and Machine Company, and other interested parties. The company will, it is thought, be incorporated with a capital stock of $75,000. The plant will manufacture porcelain spark plugs and other insulating devices.

Plans will be filed shortly for a large addition to the Fords Porcelain Works near Perth Amboy, N. J. Due to the greatly increased demand, Abel Hanson, president, announces that by the middle of the coming fall his plant will add considerable to its output.

As Was Announced at the Close of the Installment That Appeared in the July 4 Issue, a Plan of Organization to Secure by Law Means for Making Farm Drainage Installations a Matter of Public Record, is Outlined in This—the Fourth and Concluding Article of the Series by Mr. Anderson.

The Suggestions Contained Herein Are Worthy of Careful Study and the Support of Every Manufacturer of Burned Clay Drain-tile.

SOME SUGGESTIONS *looking toward the formation of a* CENTRAL DRAIN TILE BUREAU

By John W. Anderson

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A TILE MANUFACTURER said recently: "Anderson, I believe we will be successful in getting the co-operation of practically the entire industry along the lines suggested in your articles. Because of wet weather, we are having a good year for business all over the country and tile manufacturers generally will feel more like taking up the proposition vigorously than if business were slow."

Another tilemaker said, a few days later: "I think the thing will 'go' all right, but manufacturers probably would take to it more readily and push it harder if they were really hungry for business, as they have been frequently. However, most of us have memories of lean years which will help."

Here we have two viewpoints which, while arguing as to the desirability of pushing a good thing along, apparently differ with respect to conditions from which the "push" may be expected to come.

TEMPORARY CONDITIONS SHOULD NOT INTERFERE

Each of the above mentioned drain-tile manufacturers perhaps expressed, unconsciously, his own attitude, and disclosed his own manner of treating the business of sales-promotion. While both statements sound reasonable, there is, in reality, no good reason why a temporary market condition, favorably or otherwise, should greatly influence the decision in a matter of this kind.

The activities of various associations of which tile manufacturers are members indicates an encouraging tendency to look ahead and to build for the future. State organizations are doing good work along publicity and educational lines. Better acquaintance and closer co-operation has been the natural result of association work. Every tile manufacturer should strive constantly to find new ways in which to help his state association in its efforts to promote the interests of its membership.

However, as has been pointed out in previous articles, there is work to be done which cannot be handled successfully by state associations alone. This work calls for the establishment of a central bureau. Only from such a bureau may be expected that constant and sustained effort necessary to obtain those results which promise to have such a far-reaching and beneficial effect on the industry as a whole.

STATE ASSOCIATIONS SIMPLIFY BUREAU PLAN

It may be considered fortunate that a number of state organizations are well established and making good progress. This condition simplifies greatly the problem of establishing the central bureau and offers opportunities for co-operative effort that assure rapid and definite progress, once the work is under way.

Out of recent discussions of the form of organization best adapted to carry on the work outlined in these articles has come a plan which will be offered here in a tentative way and as a basis for future discussion. For those who have followed the articles (it appears that many tilemakers have studied them carefully) no elaborate explanation of the advantages of the following plan and of its adaptability to the work in prospect will be necessary.

It seems to be pretty generally agreed that, in view of the existence of the state associations, and in view of the fact that each state must have individual treatment with reference to some phases of the work, the proposed central bureau should take the form of a co-operative organization in which the facilities of the state associations may be combined to the best possible advantage.

It appears that this will be accomplished most satisfactorily by placing the affairs of the bureau in the hands of a board of control composed of representatives to be chosen by each of the state organizations. Each representative will be able to keep in touch with the activities of his own association and will provide an effective means for maintaining close relationship with other state associations, and with the bureau. He will be able to supply the bureau with information as to conditions affecting its activities in his state and will keep it in touch with the views and desires of the association he represents.

The board of control will determine all matters of policy. the location of the principal office of the bureau and will adopt by-laws governing the business and proceedings of the bureau. This board will not be expected to meet except at such times as may be deemed necessary. At such times as the board is not in session the general management of the affairs of the bureau will naturally be delegated to some individual to be selected and employed by the board of control.

There will be nothing in an arrangement of the kind suggested to restrict in any way the independent and local operations of the state associations. The relations between these associations and the central bureau will be co-operative only.

PUSHING LEGISLATION FIRST DUTY OF BUREAU

One of the first duties of the bureau will be to adopt a form of bill covering the registration idea and to carry on the work of securing the enactment of uniform laws in the various states. This will involve separate propagandas in each state in co-operation with the state associations, and will require careful direction of local and general publicity.

This initial campaign will supply the bureau with plenty of work to start, and the consideration of other phases of bureau activities may be deferred as to detail until they present or suggest themselves to the board.

In submitting this and the foregoing articles, the writer feels that he has given to the subject above as much attention as could be justified. Having no present and direct active connection with the drain-tile business, he has endeavored simply to discharge a friendly obligation to those with whom he enjoyed such pleasant relations during the time he was active in the drain-tile and allied fields.

NEXT MOVE UP TO TILE MANUFACTURERS

It now seems that he will be unable to add anything of value to that which has been said, at least until the state associations, as such, have added their views to the expressions of individual manufacturers. In other words, it is up to the states to take up the work of establishing some co-operative form of organization for carrying on the work.

It has been suggested that the secretaries, or other officers of the state associations of which drain-tile manufacturers are members, meet at an early date in Chicago for the purpose of adopting a plan of organization for the central bureau. This meeting, of course, should be attended also by every tile manufacturer who can arrange to come—and some one should be present to represent manufacturers in those states where no association is maintained.

This suggestion appears to be a good one and is passed along thru "Brick and Clay Record" because of the writer's inability to find the time to respond directly to the communications and suggestions he has received.

That a large volume of representative tile manufacturers are willing to give enthusiastic co-operation in the work outlined, cannot be questioned. That some of this enthusiasm will be dissipated in the absence of concerted action is also certain.

It is hoped, therefore, that there will be a prompt and general exchange of ideas as to the desirability of establishing the proposed bureau. Write to your secretary, write to your neighboring manufacturers and write to "Brick and Clay Record."

A WOMAN POTTER *of* RARE ABILITY

Clara L. Poillon, justly famous as the only woman clay products manufacturer—and worker, too—in the state of New Jersey, is, perhaps, the most interesting character known in the industry. An artist in her line, she specializes in colored pottery and tile, her ware being eagerly sought by some of the most prominent pottery collectors in the country. Her customers number among the money kings of the United States, as well as society leaders of New York and Boston.

And she makes this art pottery herself. With her own hands she molds the raw clay into form; she directs the burning of the kilns and then does the color work for which she has won such an enviable reputation.

"Clara of the Kiln's" pottery is a part of the old Salamander Works in Woodbridge township, in the Raritan river district of New Jersey. The Salamander plant was founded in 1825 and has remained in the possession of the Poillon family since 1871. The pottery in 1825 was the largest clay products plant in the state and was founded by Michiel Lefonlon. Mr. Lefonlon died at sea in 1842 and was succeeded as head of the Salamander Works by Henry De Casse. In 1867 the pottery changed hands, the style becoming Poillon and Weidner. The Salamander Works was incorporated in 1871 with William Poillon as president. The plant was speedily enlarged and contained eight kilns, employing one hundred and twenty-five persons in 1882. In August, 1896, the plant was destroyed by fire. In April, 1898, the corporation was dissolved. Later the plant was rebuilt and Mrs. Poillon now maintains her art pottery on a large part of the site of the old factory.

As has already been stated, Mrs. Poillon does all of her work by hand. The variety of wares, colors and glazes at the Poillon pottery are designed to meet the demands of architects, interior decorators, sculptors, artists, landscape gardeners and florists and many others of similar calling.

A Sample of Mrs. Poillon's Work

On a certain Monday in June when Mrs. Poillon was interviewed, it was learned that that was her busy day. She had arrived in Woodbridge from her home in New York early in the morning. Soon she was dressed in a costume of khaki and a few moments later was getting out molds for a large order that had just been received. Later in the day she was seen hurrying toward the kilns with a collection of pottery articles and tile to be burned. Then with her nimble brush she did some color work on bisque ware, which a little later was seen on its way to the kilns, exhibiting a skill and rapidity that was marvelous.

Great care is taken by this woman in the preparation of the potter's paste and siliceous substance designed to increase the firmness of the ware and to make the product less liable to shrink; also, so that it will not crack when exposed to heat. For more than forty-two hours the ware produced at this pottery is burned in the glost kiln and then allowed to cool slowly to insure a glaze that is perfect.

The Poillon plant is producing a variety of white glazes some of which possess the charm of the ancient Chinese, Japanese and Korean ware, and also unique shades of violet, orchid and blue. Mrs. Poillon has perfected a black glaze of great richness and high polish, resembling the Cretab shade so prized by the ancients. The originals, from which this glaze was copied, were found in Crete, the origin of the ware dating from 2,200 to 700 B. C.

The Italian piece shown in the accompanying illustration is for use in the garden and was burned in the new ten-foot muffle kiln at Mrs. Poillon's plant. Two kilns are in constant use at this pottery, under the owner's personal direction. Well-known artists are now collaborating with her in her work.

Yes, Mrs. Poillon is a suffragist and an ardent one, too. But why not? She can make pottery and tile as well, if not better, than many of the "stronger sex" and she therefore thinks that she ought to be allowed to vote with them.

House Legislates Against Foreign Competition

Brickmakers, along with manufacturers of all commodities and business men of this country, should be especially interested in the "General Revenue Bill," which has just been reported to the House of Representatives by the Ways and Means Committee. In addition to carrying special taxes and dyestuff legislation, the bill provides for an alleged "non-partisan" tariff commission, as well as a clause on "unfair competition," to take care of the "dumping" of foreign goods into this country after the war. The bill passed the House on July 10.

Doubtless the clayworking industry will be interested in what the committee, in its report to the House, had to say relative to "unfair competition." They say:

"In order that persons, partnerships, corporations, and associations in foreign countries, whose goods are sold in this country, may be placed in the same position as our manufacturers with reference to unfair competition, your committee recommends:

"1. The adoption of a provision making it unlawful for a person, partnership, corporation, or association to import and systematically sell any article at a price substantially less than the actual market value or wholesale price of such article at the time of exportation, with the intent of destroying or injuring an industry in the United States, or of preventing the establishment of an industry in the United States, or of restraining or monopolizing any part of trade and commerce in such articles in the United States; and

"2. The levying of a special and additional duty equal to double the amount of such duty upon any article produced in a foreign country and imported into this country under any agreement, understanding or condition that the importer thereof or any other person in the United States shall be restricted in any manner in his using, purchasing, or dealing in the articles of another person, partnership, corporation or association."

Illinois Clayworkers Display Patriotism

In the crisis that existed between the United States and Mexico a few weeks past, and the consequent ordering out of the national guard regiments, a part of the burden of supplying soldiers for the defense of the nation fell upon the clayworking industry. If the reports of how three of the large plants in Illinois have offered their assistance are to be taken as a criterion, a strong feeling of national support exists in this branch of the nation's industries.

A demonstration of real patriotism was given by C. S. Reed, president of the Chicago Retort and Fire Brick Company, at the time the call was issued for the "boys" to go to the border. When told that three of his employes at the big plant in Ottawa, Ill., were members of the summoned militia, he not only promised to hold their positions open for them until their return, but also to continue their pay during the full time they were out.

Worthy of equal commendation are the examples set by the Danville Brick Company and the Western Brick Company, both of Danville, Ill., who have also guaranteed to hold the positions for the men called away until their return, besides giving the assurance that those in the family left behind would not want.

Ohio Highway Commission to Open Many Bids

The Ohio Highway Commission, with headquarters at Columbus, will have another opening of road bids on **July 20 and 21,** concerning approximately 108 miles of road in 31 counties. It will be the third large letting of road contracts for the present year, and the outlay in money is said to be about $6,000,000. Many of the bids provide for brick or block paving and that form of construction is becoming more popular in state work. In Geauga county, a stretch of 1.7 miles of road will be paved with brick. In Cuyahoga county about a half mile of the Rock River-Berea road will be paved with brick at an estimated cost of $12,239. Section "A" of the Ashland-Medina road in Ashland county will be paved with brick. In Carroll county a mile and a third of the Minerva-Sandyville road will be paved with brick. A long stretch of the Cleveland-Meadville road in Geauga county, five and a half miles, will also be paved with brick. Provision is made for bids for both macadam and brick construction on the Euclid-Chardon road in Lake county. A section two miles long of the Youngstown-Lowellville road in Mahoning county will be paved with brick. The same county will pave 1.72 miles of the Youngstown-Akron road with brick. Perry county will pave 2.77 miles of the Lancaster-New Lexington road with brick. Sandusky county will pave 1.38 miles of the Fremont-Bellevue road with brick. Long stretches of brick paving will be laid in both Trumbull and Tuscarawas counties.

Raritan River Clayworkers Enjoy Beach Dinner

Members of the Monmouth Manufacturers' Association, consisting of more than fifty of the best known clay products manufacturers in the Raritan river district of New Jersey, held their first dinner during the first week in July at Seidler's Beach, near Cliffwood, N. J. Business cares were thrown to the winds at this gathering and an excellent menu was enjoyed. However, some plans were formulated with a view to placing the work of the association on a larger scale, beginning in the autumn.

The PATH *to* SUCCESS *in Operating a Continuous, Coal-fired* TUNNEL KILN

How to Avoid Expensive Mistakes in the Handling of this Important Piece of Clay Plant Equipment

By A. F. Greaves-Walker

Author of "The Design and Construction of Continuous Kilns," and other Timely Articles on Subjects of Vital Importance to the Clay Products Manufacturer

(Continued from the July 4 Issue)

MANY TUNNEL KILNS are not provided with watersmoking arrangements, the watersmoking being accomplished by drawing the combustion gases thru the last section set, before exhausting them into the draft flue. In such cases scumming trouble is a practical certainty. The combustion gases always contain considerable sulphur trioxide and sulphuric acid, and these, when they come into contact with the moist, cool ware, cause the formation of scum or "whitewash." It is for this reason that so much ware that is burned in this type of kiln is discolored and unsightly.

When the kiln has no special arrangement for watersmoking, the only precaution necessary at this period is to be sure that the temperature of the gases which are admitted into a freshly set section is not too high, or in other words, that the setters are not too close to the fire. With some clays it is possible to admit the gases at temperatures of 200 degrees Fahr. or over, but with others it is not safe to use them when over 100 degrees Fahr. at the beginning. This can be regulated by the number of sections ahead of the fire, as the greater the number of sections the gases travel thru, the cooler they become.

WATERSMOKING SIMPLE WITH SPECIAL FLUES

When watersmoking flues are provided, the operation of watersmoking is quite simple. It consists of connecting the flue to a section behind the fire which has still a temperature of from 200 degrees Fahr. to 500 degrees Fahr., and then making a connection with the section to be watersmoked. The connection with the main draft flue is then opened and the pure hot air is drawn thru the ware. Naturally the paper partitions at each end of the watersmoking section are kept intact until the period is completed. In this way the draft is controlled independently of the sections under fire. In order to control the temperature of the hot air entering the section, provision is made for the admission of cold air into the watersmoking flue in any desired quantity.

As kilns are generally designed so as to provide for an advance of one section per day, it is usual to complete the watersmoking in twenty-four hours. It is seldom *possible* and often difficult in this length of time to get the ware to a temperature much above 200 degrees Fahr. or 225 degrees Fahr. thruout, but whatever the temperature may be when the period is up, the partition nearest the fire is broken and the section thus connected up with the burning section. The watersmoking flue connections are then advanced one section at each end.

SUCCESSFUL WATERSMOKING DEPENDS UPON DESIGN

Successful watersmoking in a tunnel kiln depends very largely on the design. Some kilns are designed in such a way as to make it almost impossible to get the proper distribution of heat in this period. Often too, the construction of the watersmoking flues is so bad that sufficient heat cannot be drawn thru them because of air leaks, and the result is that the section has to be taken into the circuit before the period is complete, with the result that the ware is always "scummed."

The use of wicket fires (temporary fire-boxes built in the wickets) is sometimes resorted to in the watersmoking period. These fires are fed with wood, coke or coal, and are made to carry the section as far along as possible, or to augment the heat from the watersmoking flue.

When connecting up a section that has been watersmoking to the sections under fire, it is best to split the draft for a certain period. Instead of closing the connection between the section behind the watersmoked section and the draft flue, and drawing all of the gases thru the watersmoked section, the draft connections of both sections are partially opened, thus splitting the draft. If the gases in the burning section are very hot, this method reduces the shock to the ware in the new section. As the temperature is raised in this section, however, its draft connection is gradually opened wider while the one in the section behind is gradually closed. This operation is continued until all of the draft is taken thru the new section. With some clays such precautions are unnecessary and in such cases the change may be made abruptly.

PAPER PARTITION SHOULD NOT BURN PREMATURELY

The gases of the burning sections should *never be hot enough to burn the paper partition* of the watersmoking section until after the watersmoking is completed. If such is the case, the kiln is not being operated economically, the waste gases being discharged at too high a temperature. When the setting is held up for any reason, the burning must also be slowed, and if necessary, stopped completely. A continuous kiln loses heat very slowly and firing may be stopped for from two to five weeks and there will still remain enough heat to ignite fuel when operations recommence.

There is always considerable discussion as to the number of sections of a kiln that should be kept under fire, and as to the number of sections the draft should be pulled thru before being exhausted. It is small wonder that no agreement can be reached on these questions, and small wonder also that one who attempts to give advice on the subject can seldom be of very much service. As has been said before, it is seldom that two kilns are found that work alike, and when the difference in construction, clays, ware, setting, size of fans or stacks, condition of the kilns, and operators are considered, it is not to be expected. It is possible, therefore, to cover the subject of burning in a general way only, taking a sort of average of general existing conditions.

NUMBER OF SECTIONS TO KEEP UNDER FIRE

Fuel should be fed to from three to five sections. The high fire section naturally consumes the greatest quantity, and as a rule, light charges should be fed every ten to twenty minutes. The feed holes ahead and behind the high fire are fed lighter charges and at wider intervals, according to their distance from the high fire and according to the speed with which the fuel is consumed, and the sort of clay used. Usually a section is under high fire until the finishing heat is reached, top and bottom, and then a soaking heat is maintained for a certain period until the ware is finished. During this period the finishing heat is advanced. The whole operation, of course, is a continuous one, the peak of the temperature curve slowly advancing all the time.

As the fire advances, fuel is fed to fresh rows of feed holes, but this should never be done until a *red heat shows in the bottom, and fuel should only be fed at such times and in such quantities as can be entirely consumed.* Premature firing or feeding in too large quantities will result in an accumulation of fuel in the race flues, with consequent checking of the draft, and the possibility of too much local heat when the accumulated fuel does ignite. It is always best to defer feeding fresh feed holes until a red heat is visible, at the bottom, *in daylight.*

THE IMPORTANT MATTER OF "BACKING" HEAT

It is sometimes necessary to feed fuel to several rows of feed holes behind those which are at finishing heat, in order to maintain what is known as the "backing." A continuous kiln, in order to work efficiently, *must have preheated air for combustion.* This preheated air is furnished by passing the air required for combustion thru the ware that has been burned. In this way, not only is a large percentage of the heat recovered and reused, but the air reaches the high fire section at a temperature only a little below the temperature required to finish. It is for this reason principally, that a continuous kiln uses only from twenty-five to thirty-five per cent. of the fuel required on a periodic kiln.

The amount of fuel required to maintain the proper "backing" depends largely upon how close to the fire the unloaders work. If they are very close, thru a desire to rush ware out of the kiln, a larger number of rows will have to be kept under fire than if a good distance is kept. Of course, there is a limit. Many kilns give very poor results for no other reason than that the unloading section is always too near the fire. The result is that the cold air rushes along the floor thru the race flues and makes it almost impossible to get the bottom in the high fire section up to the finishing point, thus checking the advance. When the proper number of sections are kept behind the fire it is often possible to stop feeding fuel as soon as the ware has received the proper amount of "soaking," there being no necessity for maintaining a "backing" fire on account of the amount of hot ware thru which the air must pass.

Wicket fires are used in some kilns to assist the top firing in the high temperature zone. Not only do they increase the burning speed to some extent, but they insure a well burned wicket, a point usually hard to finish properly in the average continuous kiln. Wicket fires are usually started in the section ahead of the one showing red heat in the bottom. The fires are started slowly, and gradually brought up as the ware will stand it. They are maintained until after the section has passed the finishing point, when the grates are withdrawn and the opening bricked up.

ECONOMY OF WICKET FIRES QUESTIONED

There is considerable question as to the economy of wicket fires, in spite of the aid they give locally to the ware in the wicket, and the section in general. As is the case with up and down-draft kilns, a considerable excess of air is certain to pass over the fires. This air is not preheated, as is the case with the air fed to the inside fires, and consequently there is a loss in efficiency. Consideration must also be given to the ware damaged by contact with the flame and ash of these fires, there being no bag wall to protect it. Added to this is the cost of constructing these wicket fireboxes and cleaning up the ash and spoiled ware after them. These last two items are rather surprising when put down on a cost sheet.

DRAFT

It is practically impossible to designate the number of sections thru which the draft should be pulled to get the best results. Kilns equipped with stacks are definitely limited because the stack can only pull thru a certain number of sections and maintain any kind of speed. In this case experiments must be carried on to determine the maximum number for best results, and the standard thus determined upon, should be maintained. When fans are used, the size of the fan is one of the determining factors. Often fan units are far too small for obtaining the best results, but in such cases it is not so difficult to rectify matters as is the case where an undersized stack has been built. An oversize fan is a splendid investment, for it is an easy matter to cut the draft when it is too high.

The question of draft in continuous kiln operation is one of the greatest importance. The speed of the kiln is dependent to a large extent upon it. There is a surprising difference in the rate of advance of kilns of the same type and size which are burning practically the same class of ware. This advance ranges all the way from 100 to 250 feet per week. Some of this difference is due to the material, but most of it to methods of operation.

It will be plain to anyone that fire will travel at a greater rate thru a tunnel under a high draft than under a low one. It will be just as plain that fire will travel faster thru loose setting than thru tight setting, and that the gases can be pulled thru the former at a higher velocity than thru the latter.

However, there is a definite limit to the velocity that may be given to the gases in a kiln by the fan or stack. Kiln operators have all noticed that at a certain point, slightly in advance of the row of feed holes receiving the finishing heat, there seems to be no draft. When the caps are lifted over this point there seems to be neither suction nor pressure, while ahead there is suction, and behind, over the high fire, there is pressure or "kick." Some operators have also noticed that the best results can be obtained from the kiln when this point of "no draft" is kept at a certain determined *distance ahead of the feed holes receiving the finishing heat.* If the draft is increased or decreased, this point will move from its proper place and almost immediately the rate of progress seems to be arrested.

William A. Butler, a ceramic engineer, who has given some good advice to continuous kiln operators, called attention to this point of "no draft," several years ago. He had found by experimenting that if air was forced by means of a fan, thru the cooling ware behind the fires, the draft could be increased and the point of "no draft" still maintained in its proper position. Such a condition allowed of a greater fuel consumption together with a more rapid advance of the fires. There is not the slightest question about the soundness of this idea. The draft unit is constantly attempting to create a vacuum in the kiln, while nature is attempting to fill this vacuum by supplying air from behind. Unless some mechanical assistance is given to this flow of air in order to push it to its destination (the fires) in larger quantities, the kiln speed will be governed by the speed with which the air can naturally work its way thru the closely set ware.

NOT HARD TO DETERMINE POINT OF "NO DRAFT"

Many operators pay little attention to this important point of "no draft," with the result that it wanders over a considerable area. Close observation for a few rounds of the kiln will determine its proper location (which will vary in each kiln), and when it is once found it should be maintained. Draft gauges are a valuable aid to the burner, but when not provided, he can soon learn to control the draft to a great extent by noting with his hand the distance above the feed holes, in the finishing zone, to which the hot air is forced.

After the finishing heat has been reached in a section it is the general rule to maintain the fires for a sufficient time to give the ware a "soaking." This "soaking" fire is usually maintained over an entire section at least, the fuel being fed in such quantities and at such intervals as will maintain a fairly constant temperature. The heat generated in this section not only improves the ware, but it furnishes "backing" for the high fire section by increasing the temperature of the air of combustion. There is no waste of fuel in this practice because the amount used on the fires ahead is decreased in proportion.

UNLOADERS SHOULD NOT BE TOO NEAR FIRE

Every effort should be made to keep a red heat in at least three sections behind the finishing fire. This is not difficult if the unloading section is kept far enough behind the fire. Opening sections too close to the fire greatly decreases the efficiency of the kiln and results in numerous troubles. Sometimes the ware is cooled too rapidly, resulting in cracked, checked, or brittle products.

No rule can be made regarding the number of sections to be carried in a circuit, but roughly it should be as many as can be handled and still get the proper draft. It is useless to connect more sections than the fan or stack can handle properly, for under such conditions the capacity is bound to be reduced.

After all, the continuous kiln is a very simple proposition. It is the clayworker himself who makes it otherwise. It is quite safe to say that a well designed continuous kiln is far simpler to operate than a battery of down-draft kiln, and requires a far smaller knowledge of the scientific side of ceramics. The greatest surprise most successful continuous kiln operators have had, is the discovery, after a more or less lengthy period of disappointment and dissatisfaction, that about all that is necessary to make their kilns work properly, is an ordinary amount of common-sense and good judgment.

(*Concluded*)

MOTOR TRUCK TIRE ABUSES

How the Clay Products Manufacturer or Dealer Can Avoid Harmful Practices that Tend to Shorten the Life of His Motor Truck Tires

By A. H. Leavitt

Reprinted from "Engineering and Contracting"

TIRES, however well designed and however well adapted to the hardest truck service, are everywhere falling short of attaining the goal of one hundred per cent. profit-making ability, because of abuses to which they are subjected. Some of these abuses are legitimate, most are not. The most important of these tire life-shortening abuses are here briefly discussed. It is well that everyone interested in getting the most mileage and service from his tires familiarize himself with means of prevention of these abuses.

OVERLOADING

The dangerous effect of overloading cannot be over-estimated. Tires are constructed to carry certain loads, which if exceeded, will result in premature failure of the tire units. Rubber compressed beyond its safe limit of elasticity, will break down (Fig. 1) just as any other material will do. Rubber compressed to such a limit, is also much more susceptible to damage from road obstacles. Continued overloading is

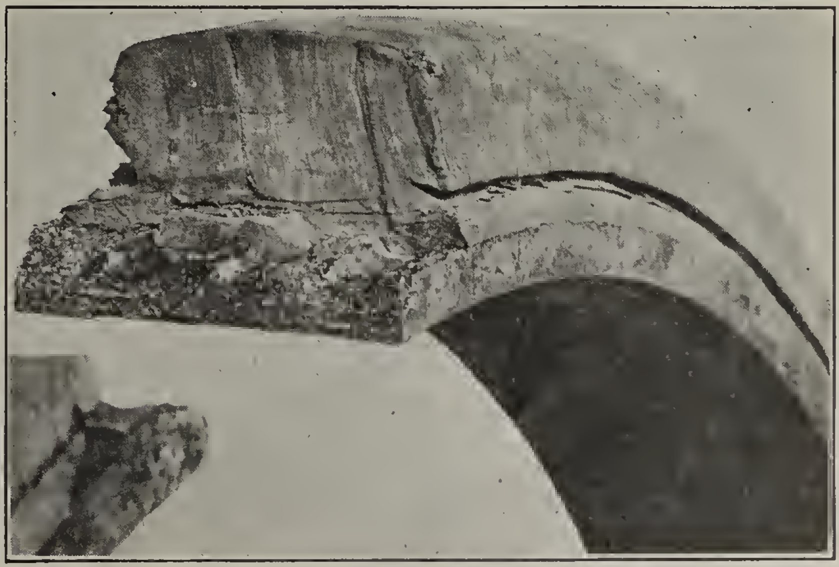


Fig. 1—Tire Broken by Heavy Loading

not required to ruin a tire, as one excessive load or a blow developing equivalent force from high speed may do it, and a permanent rupture to the structure is likely to follow. Avoidance of overload and proper care of tires are of first importance in the economy of operation.

SPEEDING

In a tire injured thru over-speeding, as shown in Fig. 2, the results are similar to the injuries resulting from overloading. The effect of heat generated within the tire, due to rapid displacement and road friction, is too well known to require further comment. When striking obstacles at high speed, the possibility of rupture is much increased.

SKIDDING

Skidding or locking the brakes and sliding the wheels results in serious and most uncalled for damage. This has a ruinous effect on the mechanism of the truck, as well as causing great damage to the tread of the tire. The tire illustrated in Fig. 3 was practically new; the tread was completely torn away for a short distance, as a result of skidding. It is a matter of fact that a truck will not stop as quickly by sudden application of the brakes, as when improperly adjusted brakes permit one wheel to lock, while the other runs freely. This same condition is also found on equipment which turns corners at a high speed. This naturally increases the side strain and wear on the tires.

BAD ROADS

One of the elements most destructive to solid tires is bad roads. Regardless of any precaution which might be taken in respect to overloading, excessive speeding, etc., if a loaded truck is habitually used over bad roads, the tires receive abuse such as will materially affect their life.

WHEELS OUT OF ALIGNMENT

The tire illustrated in Fig. 4 looks as if it had been worn down perfectly smooth in service, but as a matter of fact, it only gave a few hundred miles of service. The cause of this quick wearing was due to one of the wheels of the truck being out of alignment. The effect of the truck, when a wheel is out of alignment, is that of continual friction, as the wheel partly rolls and partly slides. Wheels should be inspected often, and when this condition is found, immediate steps should be taken to remedy it.

NEGLECTED CUTS

Cuts on solid tires are more or less a common occurrence. This is, of course, governed largely by the road conditions. The ultimate effect of a cut depends upon the size and location, as cuts near and at the edge are most injurious, and if neglected may seriously affect the life of the tire, as the tendency is always toward the cut enlarging, especially in circumferential direction. Some trucks are backed up a great deal and the cut consequently enlarges both ways from the injury. The weakening of one unit of a dual tire in this manner naturally throws an overload on its mate at the point of injury, which may cause it to fail as in the case of Fig. 5. To prevent the continuation of a cut on the edge it should be trimmed.

CAR TRACKING

It is common to see not only the motor truck driver, but also the horse truck driver, proceeding down the street with all wheels of the truck or wagon in the car tracks. It is unquestionably much more comfortable to ride in the car tracks on some streets than it would be on the streets themselves. However, the results of running solid tires on car tracks are disastrous. The entire load is thrown onto one-half of the tire tread, with the result that it is rapidly worn or broken away on one side (Fig. 6), eventually leaving the width of the tire reduced by one-half to carry the original full load.

NON-SKID DEVICES

Another of the accompanying illustrations, Fig. 7, shows the injuries resulting from the use of anti-skid devices, which were improperly applied. Unfortunately, we know of no auto-skid device that does not, to some extent, injure solid tires. Some devices are more injurious than others. The loose chain has been found the least so because it works itself around the wheel and provides an equal distribution of the wear and strain. Stationary devices are most injurious because the wear and strain are constantly confined to the points of bearing.

Chains of various designs, which pass circumferentially around the wheel and between dual tires, place a strain on the tire base, and are generally ineffective because dependent upon the compression of the tire tread to allow the device to secure traction.

The traction wheels are liable to spin more or less in slippery places, which produces a sharp blow on the tires where these devices are in contact. The force of such blows increase as the distance between the cross pieces of the device increases, because of the momentum the wheel gains between these points. Less injury will result if such devices are only used temporarily, and when needed. It is also advisable to use a device having numerous cross pieces.

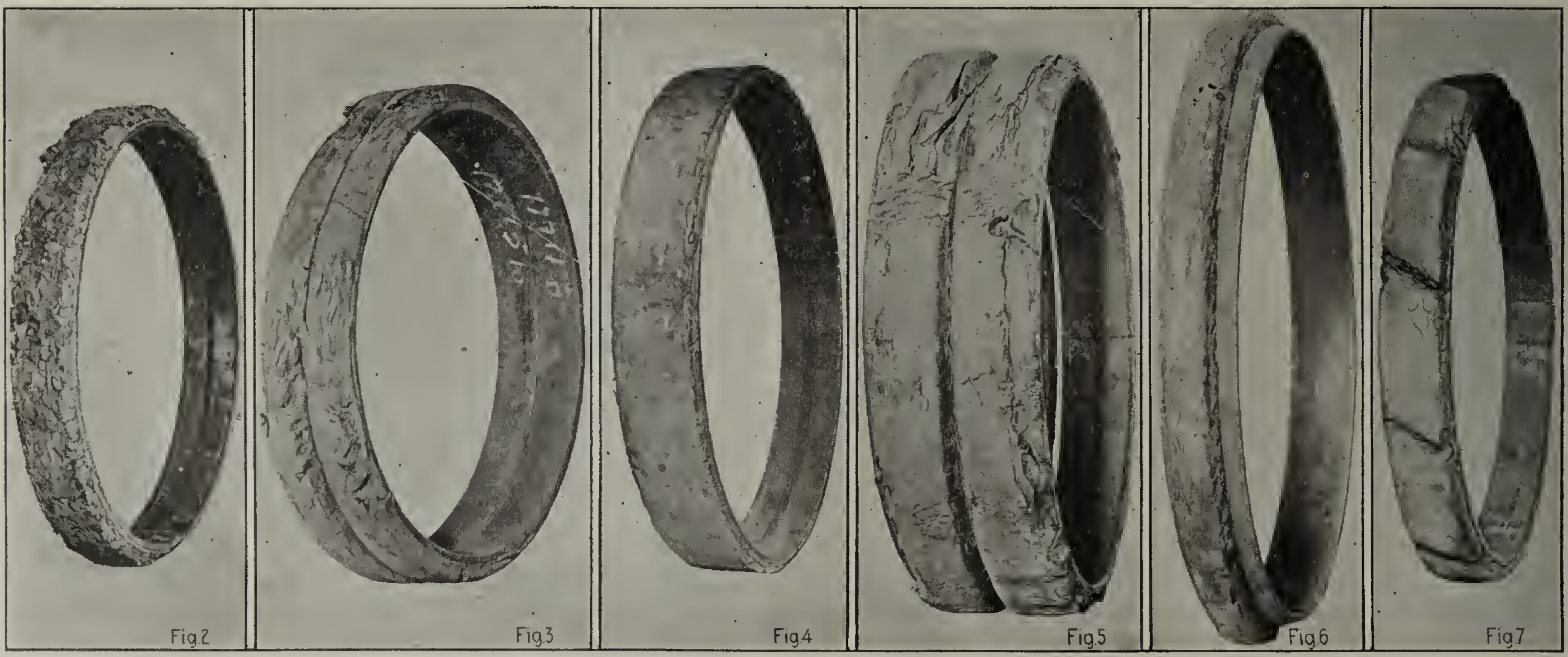


Fig. 2—Tire Injured by Speeding. Fig. 3—Tire Injured by Skidding. Fig. 4—Tire Injured by Wheels Being Out of Alignment. Fig. 5—Tire Injured by Neglected Cuts. Fig. 6—Tire Injured by Car Tracking. Fig. 7—Tire Injured by Non-Skid Devices

WHAT THEY SAY ABOUT PRICE CUTTING

Comment, Criticism and Suggestions from Both Manufacturers and Dealers of Face Building Brick Regarding the Proposed Plan for Open Prices

THE OLD SAYING that two heads are better than one has lost little of its application with the passing of the years; in fact, the idea which it conveys has gained in popularity, if anything. Just how true this is can be realized when it is remembered that nearly every large business house of any standing whatever courts suggestions, not only from its departmental managers, but from its employes—from those engaged in the most menial tasks to the highly skilled and highly paid help. A good many business houses hold salesmen's conferences for no other purpose than to help the individual get the viewpoint of the other fellow and to learn how one particularly successful man swings over a hard customer.

And this idea of helpful suggestion is particularly valuable in the launching of a new plan, whether it pertains to the manufacturing, or to the selling end of any business. In this case where the plan touches on the marketing of the product, and involves, as it does, some radical changes, comment from all those affected is going to contribute largely to the shaping of the policy to be pursued.

The American Face Brick Association has sent out a call to its membership for an expression from each and every member on the plan advanced in Mr. Fiske's paper on "Price Cutting," which he read before a recent meeting of the executive committee of the association. "Brick and Clay Record" also sent out a letter asking for the views of those of its subscribers who are engaged in the manufacture or sale of face building brick. Incidently, the American Face Brick Association also asked for comments from dealers as well as manufacturers. From the appeals sent out many very interesting and exceedingly valuable replies have been received, some of which are given below:

DEALER SHOULD SET PRICE

The following letter was written to the American Face Brick Association under date of July 10, by Harold W. Holmes, ex-president of the association, now serving in the capacity of president of the Colonial Brick Company, Detroit, Mich., a face-brick *dealer*—

I have read with much interest a paper by J. Parker B. Fiske on "Price Cutting" and have noted carefully his recommendations looking toward open prices. I also have given this subject careful thought and, having examined the problem from the standpoint of the sales agent, as well as the manufacturer, am lead to express a few ideas.

There can be no question in the mind of any brick man that the business is in an unsatisfactory condition so we may accept this fact and approve of Mr. Fiske's general remarks without argument. Let us come then quickly to a consideration of price cutting and open prices.

IDEAS TESTED WITH PRESENT CONCERN

In the beginning, I may say that some of my ideas of open and standard prices are being tested by the Colonial Brick Company, and the results of these tests, taken together with results of similar policies in my former brick connections, are the basis of my remarks. For about four years, companies I have been connected with selling brick in Detroit, have worked on the following principles:

1. To establish prices on brick and hold those prices the same to all customers.
2. To print all prices on brick and post them prominently so they could be seen by customers or competitors.
3. To permit no cut or special prices which are not the same to all.
4. To sell only first quality brick where possible and only to sell any other quality after making a clear explanation of what would be shipped.

OPEN PRICE POLICY HAS GAINED BUSINESS

The results of these policies have been highly pleasing. We believe we have gained business thru them. We know they have eliminated a great deal of dissatisfaction and trouble, and we feel that our business and we ourselves are held in higher esteem because of them. (It might be interesting also to know that we stand alone in our territory on the open price policy. No other brick company, to our knowledge, in Michigan is working on this basis.)

From my experience and study then, I am convinced that open and uniform price selling methods can be made successful. I am not convinced, tho, that they can succeed under any and all circumstances for the system is not "fool proof" and must have intelligent handling.

BELIEVES DEALERS SHOULD SET THE PRICES

I believe it is possible to work out some satisfactory open price basis of selling brick in any large city. Then with those prices as a basis, to work out standard and open prices for the surrounding smaller towns and country. I believe, however, that this work must be done by the local sales agency because they alone sufficiently understand local conditions and know the costs and difficulties of doing business.

I believe brick manufacturers should interest themselves in this work, encourage and assist their agents to work out standard prices, and then keep a record of the prices established.

Then I think the manufacturers should use their influence to have the prices on their brick harmonize, that is, have the prices in adjacent territories so that there is no great difference. And above all things, it should be made impossible for brick to be sold in open territory adjacent to an agent's territory at prices different from those the agent would have to charge.

I am arguing from back to front, but if the above suggestions were carried out it would make it advisable and, in fact, almost necessary for the factories to operate on an open price basis. An agent cannot well know the sale prices on brick in neighboring territory without knowing the factory prices, and an open price policy as regards prices to customers could not exist long without all factory prices being known. And why not? Would any less brick be sold?

SUGGESTED PROCEDURE IN WORKING OUT POLICY

In working out an open price policy, the factories might proceed as follows: Name and publish prices, f. o. b. the factory which would be charged in any general district.

1. To preferred dealers.
2. To agents or representatives not on the preferred list.
3. When the brick was sold to the customer or contractor.

I do not mean by this that the plant should fix or even publish (altho there is no particular objection to the publicity) a price to the customer in a city like Detroit, but the fixing of prices and publishing of prices just referred to should refer to a territory of large extent. I can possibly explain this better by an example. For instance, a plant might establish and publish a price f.o.b. factory on their brick going to a territory such as Michigan, Northern Ohio, Northern Indiana, Northern Illinois and Wisconsin. Considering such a territory in which would be included Michigan and Northern Ohio, we would know in Detroit that the same factory price was being made to agents in Toledo and those in Chicago as was made to us. We would know that quotations made to an architect in Chicago on work which might be done in open Michigan territory would at least be based on a factory price the same as we had it.

Then, in some city, such as Jackson, Michigan, in which the factory sold brick occasionally thru a dealer who was not on the preferred list, we should be able to know that the price f.o.b. factory to that dealer would be perhaps a dollar higher than the figure given to the preferred dealer. This would enable either the Detroit or the Chicago dealer to interest himself in a Jackson job without interfering with the price or the local agent's commission and still provide a margin of a dollar per thousand for him.

ELIMINATING LOWER PRICE TO CONSUMER

Further, it should be known that the price on any certain brick f.o.b. cars plant, made to a contractor or owner in Monroe, Michigan, was based on a certain factory price, perhaps $2.50 per thousand higher than the factory price given to the preferred agents in Detroit, and to this price the local contractor or owner must add his freight expense. This would result in prices f.o.b. Monroe, Michigan, which would harmonize with prizes quoted by the Detroit agent. Such a plan would do away with the possibility of the factory actually selling brick in Monroe for a price less than they sold the same brick to their preferred dealer in Detroit. This has happened and it is one of the reasons that make the brick business what it is today.

So far as above outlined, I think that the factory can practically control its prices, but I think that in a city like Detroit or Cleveland or Chicago, that it will never be possible for a factory to control its prices to customers unless it does so thru the agent. The plant does not understand local conditions, in fact there might be a variety of local conditions which would permit different methods of handling.

MUCH CONFUSION IN QUOTING OF PRICES

For instance, in Detroit it is the custom to name a price delivered to the job; the price named including, besides the usual cost, a freight charge, a charge for cartage, and a discount to be given to the contractor for prompt payment of invoices. Some dealers in Detroit make a uniform price on brick to all points within the city limits, equalizing the difference in cartage expense themselves. This results in the same price on brick if carted a quarter of a mile or if carted three miles. Other dealers have adopted a plan of charging according to the length of the delivery haul. Some dealers make the same charge for brick whether they are delivered to the job direct from the car or whether delivered from their storage yard. Other dealers make a different charge under these conditions. I agree that it would be a more satisfactory plan if the dealers in Detroit would agree on these points and all handle the problem alike; but the argument I am making is that under these Detroit conditions there are three or four methods by which prices delivered to the job could be made, and unless every plant were acting on the same basis and knowledge, it would be unfair and unreasonable for the plants to dictate the delivery prices in Detroit.

I have dreamed of a day when brick from the various factories in the country might be handled thru a large sales organization, strong enough to permit their coming into a territory like Detroit and solving not only the general but local conditions. If this could be done, then the details of the local delivery price might readily be worked out by the factories, but I think it is not possible so long as the problem is being met by from twenty to fifty factories in different ways.

SHOULD NOT INTEREFERE WITH SPECIAL CONDITIONS

I have heard the point raised that an open and uniform price policy would necessitate a factory selling its brick in all localities for exactly the same prices and so be unable to take advantage of especially favorable conditions at some particular point or meet local competition at another. I don't entirely agree with this idea. We, in Detroit, are not especially concerned with the prices a factory makes to its agent in New York. We do want the price in Detroit, tho, to be in line with prices on similar brick in competitors' hands. We are also concerned that the prices quoted by a factory to agents in our neighborhoring cities, such, for instance, as Toledo, do not give them any advantage over us. In other words, it all comes back to the same considerations made by the individual purchaser, namely, that he is getting the best proposition available and just as good a one as his neighbor can get. If we are sure of that the price itself is a secondary consideration.

ADOPT PLAN IN SPIRIT AS WELL AS IN FACT

It would certainly be a great step forward if the factories would adopt an open-price policy, and it would be an even greater step forward if the factories would adopt such a policy in spirit as well as fact. To be exact I mean it would be a great step forward if the factories would adopt such a policy and not lay plans immediately to evade it in special cases.

Mr. Fiske speaks of agents and points out truly some of the many troubles arising from their unscrupulous and unbusinesslike methods. He might have said much more without exhausting the subject, but consider this: Who selected those agents, and who continued them after their practices were known? In nine cases out of ten the agent is a poor alibi for the cause of the trouble. In most localities where undersirable agents operate there are also men or companies who are trying to do business on a higher plane. They may not be selling as much brick, but they would probably sell more if Mr. Undesirable were eliminated. Perhaps you may understand, too, how discouraging it is for the agent who is trying to do right in the face of unscrupulous competition. He has that competition to face with each customer and he has also the weight of half a dozen or more of the prominent factories who support the unscrupulous by allowing him to sell their brick. So long as factories are so short sighted and spineless that the danger of temporarily diminished sales overweighs other considerations, just so long will these conditions exist.

STANDARDIZATION A SEPARATE PROBLEM

Another point that seems to arise immediately after open prices are considered is that of standardizing brick. This, I believe, to be so vast and complicated a problem that I trust it will not be made an issue with open prices. Certainly it would be desirable if brick qualities and service could be standardized at this time, but I doubt its being possible. Let us go as far as we can and not hesitate because we cannot make the whole distance in a day.

And finally let us remember:

Most prices are cut—not to get an order—but to keep someone else from getting it.

Is it more sensible to lose money than to permit your competitor to make some?

If you have established a right price in the first place you are losing money when you cut your price.

When you cut your price you publish the fact that your price was wrong in the first place—that you were willing to cheat your customer if he hadn't caught you.

Or if your price was right you declare yourself afraid to stick to the right—a business coward doesn't get much further than any other kind.

BROTHER BRICKMAKERS ARE HIS AGENTS

B. W. Ballou, secretary and general manager of the Kansas Buff Brick and Manufacturing Company, Buffville, Kan., in a letter dated June 12, gives voice to the following views on the subject. The Kansas Buff Brick and Manufacturing Company, as the name indicates, is a *manufacturer*. But it is also a *dealer* in face-brick.

I have read with a great deal of interest the little pamphlet, "Price Cutting—The Disease of the Face Brick Business and its Remedy," read by J. Parker B. Fiske at the meeting of the board of directors of the American Face Brick Association, held at Pittsburgh, Pa., May 12, 1916.

In putting in the amount of time Mr. Fiske has on this paper he has again placed the face-brick industry under obligations to him, and I want to express my appreciation of this work and the many good suggestions he is offering, which, in my opinion, will go a long way towards solving some of the troubles of our industry. I believe this paper will at least blaze the way for bringing about better conditions.

As suggested by you, I am going to take the liberty of writing you fully in regard to the matter, offering any suggestions or criticism that may seem reasonable to me, hoping I may say something that will help the cause along.

We all agree with Mr. Fiske in that the trouble of the face-brick business today is in the control of the price of brick to the retail trade. It is useless for us as manufacturers to get together on any kind of a basis, unless something can be done to eliminate this trouble, because we all know and appreciate the main trouble has been that we have been endeavoring to lower our cost of manufacture and improve our product with the hope of commanding a better price and increasing our margin, but in almost every case, whenever we save a dime in the manufacturing end by improved methods and scientific management, we are called upon by the little broker, who has practically nothing invested in the business and knows less about the manufacture of brick, to forfeit all we have saved in order to help him land some order that, even after it is sold and delivered, is not a credit to himself or the face-brick business. He not only cuts the price of the manufacturer but lowers his own margin to such a point that he is eventually eliminated from the business and then some other "green horn," with neither money nor respect for the business takes his place and assumes control of our prices, terms, and so forth.

As previously stated, the question how to eliminate this one trouble is an important one, and, as Mr. Fiske has aptly put it, the manufacturers must take out of the agent's hands the power of cutting prices on individual jobs.

CHOOSES BROTHER BRICKMAKERS AS AGENTS

This company, having acted and now acting as both manufacturer and sales agent, I have been fortunate in looking at the question from both the manufacturer's and sales agent's standpoint, and so far as control of the selling price is concerned, believe the only way it will ever be remedied is for the manufacturers, when selling their goods outside of their own community, to place same in the hands of some other manufacturer who is making face-brick or who is a competitor. If he cannot do this, I believe he should place his material in the hands of some selling organization that is directly under the control of a face-brick manufacturer, who will be in a position to dictate to them the policy of their business.

I know there are a great many objections to this plan on the part of manufacturers, but I have tried it out in some sections, and while, in some respects, it did not work very satisfactorily the first time, it proved to be beneficial in a great many respects.

MANUFACTURERS COULD TALK THE MATTER OVER

Take for instance a manufacturer from the state of Ohio, who is shipping brick into Iowa: He finds his sales are not what he thinks they should be, so makes a round of his agents, listens to their tale of woe, especially in regard to the very low price being made by the local manufacturer and that, if the Ohio manufacturer expects to get any of the business, he must cut the price. The Ohio manufacturer would naturally not go to the Iowa manufacturer for the reason he is over there for an increase in business. In order to get the business, he is going to cut the price and when he cuts the price he will place it in the hands of this "bane of the face-brick business," known as the broker, whose only object in cutting the price is to increase his volume and profit. Now, if the Ohio manufacturer was selling the brick thru the Iowa manufacturer and he had any cause for complaint on the amount of business he was getting, he would naturally go straight to the proper man, his brother brickmaker. They could sit down, talk these matters over, and it need not be necessary to cut the price. The Iowa manufacturer would be interested in giving the Ohio man a fair volume of business for the reason every brick shipped from Ohio into his territory would mean he would get that much profit without the necessity of cutting the price and this would take out the sting of competition while, at the same time, you would be binding the manufacturers of face-brick closer together, which would eliminate the necessity of price cutting. As conditions are, the broker in the Iowa territory must be paid by the face-brick business and his increased effort does not necessarily mean increased business for the face-brick manufacturer, but it does mean increased cost of selling. We know of conditions now where a great many jobs that are attended by face-brick salesmen do not yield enough profit to pay the salesman's hotel bill and railroad fare, to say nothing of excess baggage in way of samples, etc. All this reflects back on the manufacturer, because it is a well-known fact that, where eight or ten men are on the job offering different kinds of brick, there will be no tendency to raise the price.

IMPOSSIBLE TO FIX DEALER'S PROFIT

Referring again to Mr. Fiske's paper and to the first item of his plan. It would be a simple matter for each manufacturer to fix the average net price per thousand at which he would be willing to sell his brick f.o.b. cars his plant, but it seems to me impossible to fix the profit that should be added for the selling expenses for the reason the cost of selling brick in different localities will vary. We know of some communities where face-brick are being sold with a profit of $1 per thousand while in other places they undertake to get $3 and $4 per thousand. This refers, of course, to the towns and not large cities where they have yard and drayage propositions to take care of.

Relative to the second item, publishing of price list, beg to say this is certainly a good one, because neither this plan nor any other will be a success unless the manufacturer is willing to come out in the open and discard the "gum shoe" methods referred to in Mr. Fiske's paper.

However, I do not believe you can apply either the first or second item referred to above without first getting a classification on all the face-brick manufactured by the members of the American Face Brick Association, because there are so many different kinds, styles, shades and colors of brick, so many advantages and disadvantages in the different localities that the dealers, architects, owners and even the manufacturers themselves are thoroly mixed up and do not know heads or tails of their business so far as the classification is concerned. Believe this should be worked out on a satisfactory basis to all concerned. It is a big thing and, when it is accomplished, I believe it will go a long way towards eliminating a great deal of trouble we are now having.

SHOULD HAVE SOME BASIS TO FIGURE FREIGHT

Another thing that I believe will have to be done before these two remedies can be applied is to have some basis on which to figure freight rates, because now the matter of freight rates is considered one of the most important in the sale of face-brick. There are so many advantages and disadvantages attached to different plants it would be better to have some point from which to figure in certain territories, so when a job comes up in any community every manufacturer will know the classification of all face-brick and know how much to add for freight from a certain point covering this territory. You will find this is the manner in which many other industries are being handled now, and it eliminates all this complication in connection with freights.

Do not believe the third remedy will be necessary if the brick business is handled by face-brick manufacturers, and the same is true of the fourth. But in the fifth, believe the manufacturers should not only publish their price list, but should also report every sale made by them to the office of the American Face Brick Association, and let the secretary, in turn, publish daily every sale made, kind and price. Of course, I appreciate it is illegal to agree on a price and say what you expect to do, but we do know every man has a right to tell what he has done, and it is a matter of record, as well as news, that can be published to anyone to whom we choose to give the information.

BELIEVES ALL SHOULD CO-OPERATE

As stated by Mr. Fiske, there are many details to the plan that will have to be worked out. I believe every manufacturer who has a dollar invested in the business should line up and offer suggestions and co-operate in working out some plan that will eliminate the one trouble we know we have. I believe in working out this plan, the first thing to be done is to take up the individual states separate, and have the manufacturers in these different states feel and understand they are not made the dumping ground for the fellow next to them. Have them understand their neighbor across the line or across several states is interested in their welfare, as well as his own, and that their neighbor has a fair volume of business at a fair price and with fair treatment.

We all appreciate no one manufacturer can furnish all the brick in any one community; there are too many different types of buildings constructed, requiring different classes of brick made all over the country, and there must be an interchange of brick from one state to another and from one part of the United States to another, and the only way to do this is to have the matter handled by the man who has the money invested in the manufacture of face-brick.

MANUFACTURER MOST SYMPATHETIC AGENT

I want to say as a manufacturer and as one interested in the handling of other material, I have no selfish motives whatever in these suggestions, because I have a great deal more territory in which I am selling our product thru manufacturers than I am handling as a dealer for manufacturers, and have for the past several years been encouraging the interchange of brick in this way. I find there is nothing that brings the manufacturers closer together than when they can sit down and talk with each other about conditions, sales, prices, volume, etc., thruout different territories, and feel their interests are mutual and that they are helping each other in doing so. There are so many advantages in arrangements of this kind that I will not undertake to enumerate them here, but it makes a fellow feel pretty good to deal with a man who understands his own conditions and protects his own interests when needed. We get and give better representation, we believe, than any outside broker could give or get. For instance, when a car of brick is rejected for any reason, the manufacturer is on the job and finds out whether the claims made by the man buying the brick are just, and when we are advised of the condition of car of brick at destination by the manufacturer, who has no selfish motive in the matter, we feel quite different than when some broker wires us "Car rejected. Up to you."

This plan I know will seem decidedly out of place in a great many communities, but regardless of any plan that might be suggested, unless some plan is adopted whereby the manufacturers are brought closer together, it will be impossible to get the results so much desired.

Want to say in conclusion, I believe the hope of the face-brick manufacturers today rests in the American Face Brick Association, and we should stick together as an association, offering suggestions, criticisms, plans, etc., until the matter is worked out on the right kind of a basis.

SQUASH PIRATICAL BROKER

Below is the copy of the body of a letter written, under date of June 24, to the American Face Brick Association by W. K. Squier, treasurer and manager of the Paragon Plaster Company, Syracuse, N. Y., a face-brick *dealer:*

Accepting your invitation in the pamphlet "Price Cutting," I venture to offer some ideas that occurred to me as I was reading this very interesting paper.

That the face-brick "Dealers-Agents" business is sick —very sick—I know from years of experience. The ailment has become chronic and needs heroic treatment.

What "Price Cutting" outlines I heartily approve of, and to my mind the remedy lies with the brickmakers.

SHOULD INVEST AGENCY IN REPUTABLE DEALER

My notion is the representation of any brick manufacturer should be vested in territory covered by a reputable dealer to the exclusion of all brokers. The dealer I have in mind is one who carries a stock of salable brick, fully adequate to care for the ordinary requirements of his community and the immediate surrounding territory.

The damage to the markets in central New York is due almost entirely to the piratical tactics pursued by the brokers who have operated in this section.

To cite a case in mind: A certain job in a small city required a carload of face-brick and a quotation had been made by a dealer in an adjoining city that would have yielded the small profit of $1 per thousand. Mr. Broker arrives on the ground and quotes a price $1 above the dealer's figure. When he found he could not book the order, he lowered his price, first 50 cents and then $1, and finally $1.50, leaving, as was afterwards ascertained, what netted the broker 50 cents per thousand or about $5 on the carload, and he patted himself on the back and said that he had at least paid his expenses. To further explain: The two kinds of brick were of parity and the broker would not have carried the account. Had the dealer made the sale, he would have carried the risk.

ANOTHER INSTANCE OF BROKER PRICE CUTTING

Again, a certain broker-agent, if you so wish to designate him, cut a price to secure a job. The building was a sizable one and the way he circumvented a resident dealer-agent was to furnish No. 1 brick for the first three stories and No. 2 brick for the balance of the job. There was some kicking, when the brick arrived, that the quality was not according to the purchase, but the owner wanted the building—time was valuable, and finally gave way to the blandishment of the broker who consoled the owner with the idea that up so high the difference in quality would not be noticed. This permitted this unprincipled broker to establish his fraud in this case.

In another case, a broker made a low price—$2 per thousand below the local dealer on a certain No. 1 brick, but he got what was coming to him in this case, for the manufacturers put a poster in the cars stating that the cars were loaded with No. 2 brick.

The deal was off.

The broker had to dispose of the carloads as best he could. The point was this. He sold No. 1 brick and undertook to substitute No. 2 and the factory was honest enough to designate the kind of brick in the car and for once Mr. Broker got pinched.

Why would it not be a good plan for all brickmakers to place a poster in every car stating quality and quantity?

Is it any wonder dealers are not over-anxious to spend time and money to book business that yields such a meager profit?

BELIEVES STEVENS BILL SHOULD PASS

The Stevens Bill before Congress, I am informed, provides that the manufacturer can control the sale price of his product. This measure should become a law, and it is of great importance that every manufacturer (no matter what his product is) should use his best efforts to bring about this result and cause all the pressure he can bring to bear on his senators and congressmen to accomplish this end. Should this measure become a law it would remove the fear the timid ones have that they would be transgressing the law—while I do not believe there is any danger in this direction when business is conducted on legitimate lines.

We sincerely hope the suggestion made above will receive the consideration I am sure it is entitled to.

THINKS MANUFACTURERS SHOULD REGULATE PRICE

That the price to the consumer should be made and regulated by the manufacturers cannot be gainsaid. It is the only proper way to market a commodity.

Any business that is run from the sales end when the salesman has no knowledge of the cost of a product or the overhead expense, sooner or later means ruin. It is like a ship at sea without a rudder.

Standardizing prices should have been a universal custom years ago, and I believe the time is fast approaching when it will be universally adopted. It tends to clear the commercial atmosphere and rid us of the buccaneer and cut-throat that demoralizes the business world.

SAYS DEALER WILL WELCOME OPEN PRICES

The details of this particular problem, so far as the brickmaker is concerned, rests with him, and I am sure there is not a responsible dealer but what would welcome the standardizing of prices and a plan should be so framed that the price must be respected without evasion or equivocation, or the sale of all brick would be taken away from him.

Broadly speaking, the only competition that is fair and honorable is quality and service.

The architect is not without blame. For illustration: Some broker quotes on a particular job, a ridiculously low price on (we will say) a No. 1 buff brick. This figure at once becomes a fixed price in his mind and his specifications come out based on this quotation and it usually does not qualify as to whether it is on cars or delivered at the job.

CUT PRICES NO FAVORITE WITH DEALER

A dealer who has even a moderate amount of gray matter does not welcome low or cut prices.

These piratical, buccaneer, cut-throat broker-salesmen operate in other lines and the sooner manufacturers, generally, come to a realizing sense that tonnage without profit is not as lucrative as a lesser volume of business at a fair margin, the more quickly will we arrive at a basic

(*Continued on Page* 165.)

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

HOW A DEALER STORMED A LUMBER-BUILT CITY WITH STRONG BRICK ADVERTISING

FOR MANY YEARS the question of dealer advertising has been discussed, and for just that many years the vast majority engaged in selling the best of all building materials has sat back, passively reading of—and possibly discussing—the fertile fields that might be opened to them by the judicious use of "space" in the right medium—but these dealers have not acted. They have failed to consider advertising as an investment, but rather, have looked upon it as an expense; they have assumed, and wrongfully so, that everybody already knows of the qualities that make brick the most economical-in-the-end building material, besides the most beautiful, and felt it unnecessary to give publicity to these facts, even in the face of an active campaign on the part of competitive materials.

THE RULE HAS HAD NOTABLE EXCEPTIONS

This mistake in the attitude of brick and other clay product dealers toward advertising has not, of course, been committed by all those engaged in the business. Many have taken advantage of the columns of their local papers and other mediums that reach those to whom they desired to convey their message of safe and sane building, and have reaped a rich harvest, as a result, that has many times paid for the use of the "silent salesman."

One notable and interesting instance of good dealer advertising has just been furnished by E. P. Elzey of Parkersburg, W. Va., who enjoys the distinction of being one of the most progressive dealers in that "neck of the woods." Mr. Elzey has presented to the readers of a local newspaper an education on the many advantages and the economy of building with brick by an intensive advertising campaign that cannot help but prove highly remunerative. The campaign which Mr. Elzey made use of in presenting the salient points in favor of brick construction might well be studied as a striking instance of where it has paid to advertise.

PARKERSBURG BUILT LARGELY IN FRAME

This campaign is but one feature of the publicity work that has been done by this progressive Parkersburg dealer. Parkersburg is a city of wood, most of its buildings having been built before the activities of those now interested in fire-safe construction were felt at that point, so the city presents an attractive field to the aggressive concern that has established in it one of the best face-brick display rooms in the state, and that has undertaken to educate the public, thru the advertising columns of a local newspaper, that brick construction is by far the most economical and best.

It might seem, at first thought, as tho some difficulty would be experienced in training the minds of builders to think in terms of brick in a locality that has long accepted unsafe, flimsy wooden construction as entirely suitable. But from the increased amount of brick building in Parkersburg during the past few years it can be easily seen that the money spent in educating people to look favorably on brick construction is truly a wise and profitable investment, altho it is to be by no means intimated that all the building of this character that has been done

We Put the I. C. (I See) in BRICK in Parkersburg

ELZEY SAYS

"Ask any one of the many who have used our brick in building—**THEY HAVE THAT LASTING SMILE OF AN OWNER WHO MET NO DISAPPOINTMENT.**"

A SAFE BUILDING.

Not only safe for the family but safe against itself, safe against decay and depreciation, safe in sunshine, safe in storm, safe in daytime, safe at night, safe in winter, safe in summer, safe within, safe without—**top to bottom.** The factor of safety in your building will depend upon the materials you use in building. Your building must meet the test. Build for safety—BRICK ARE SAFE.

SAFE INSIDE.

Safe to protect those within—to protect the finished interior—to protect furniture and hangings—to protect the HOME. No drafts, no dampness, no dust, no shrinking of woodwork, no slacking of joints, no bulging of walls, no cracking of plaster, no tearing of paper, no pulling loose, no letting go—BUT SAFE—solid, staple, time defying, of materials that stand the test. BRICK BUILDINGS STAY BUILT.

SAFE OUTSIDE.

Without continual **puttering over** to patch and mend and nail and fasten, brick will stay built. Sun or shade, dry or wet, they are invincible. No sills to rot, no joints to open, no cracks to daub, no paint to fade, no springing, no sagging, no mould, no decay. There is no upkeep expense—no day and night looking after—no suspense. Protection, permanence and safety are assured when you "BUILD OF BRICK."

A SAFE INVESTMENT.

The Brick Building protects occupants and contents and—in the last test—it protects the owner in ITS WORTH. IT IS A SAFE INVESTMENT. The dollars it cost are visible in the building—**They are there**—you can spend them if they are ever needed. The market value of a brick building is always more than a building of any other material. A BRICK BUILDING IS A SAFE BUILDING.

A RULE FOR SAFETY.

Select from our stocks the brick you prefer and depend upon our facilities for prompt and intelligent service **of the safe kind.**

"BUILD WITH BRICK"

See ELZEY, Union Trust Building

THE FACE BRICK PEOPLE

Finest Display of Brick Laid Up in Panels in Mortar in the State. See the Brick.

One of the Ads. That Was Included in the Campaign Decribed in the Accompanying Article. Safety Is Its Keynote there within the above-mentioned period has come as the result of the advertising done.

Such advertising as this, however, keeps the public alive to the fact that when they build they should use brick, and serves to keep the name of the dealer before the prospective builder, so that when he (the builder) has reached the point of making the necessary expenditure of his money, he will unconsciously look up the company that has been offering him advice in the daily ads.

Observing the truthfulness of this reasoning, E. P. Elzey has continuously used a certain amount of space in local papers. His name has become familiar to any and all interested in building in Parkersburg. This space, in the past, has not been unusually large and has been given over to short reminders that he was ready to care for the wants of the public in his line. No attempt was made to carry enough "space" that would permit of his expounding in detail the doctrine of "building with brick."

CHANGES FROM SMALL TO LARGE SPACE

Recently, however, he concluded to "break into big space" and feature the face-brick business strongly in an intensive, follow-up campaign. How well he utilized the space may be seen from the "copy" that comprised a few of the fifteen advertisements which appeared in this campaign, and which are reproduced herewith.

Practically every phase of the "build with brick" propaganda was carefully covered in a very convincing manner. In the exceedingly interesting and educational "copy" run for two weeks and a day was given to the public those points that they should consider in the choice of materials for their building, the qualities that make these materials desirable or otherwise, the comparative cost of a flimsy, unsafe frame structure and one of the same size built of brick. The campaign also brought forth the incomparable beauty, safety and lasting qualities of a brick house.

The attractiveness of the "copy" undoubtedly lent much to the value of the ads., and what *"Elzey says"* undoubtedly received much attention before the series had progressed very far.

MR. ELZEY HIS OWN AD. WRITER

The compilation of the data presented in the text of these ads. and the talks on the value of brick construction are entirely the work of the man behind the campaign—Mr. Elzey. Even a set of doggerel verses on the unreliability of frame construction was written by him. This fact makes the copy of still greater interest to brick dealers who may be contemplating a similar campaign.

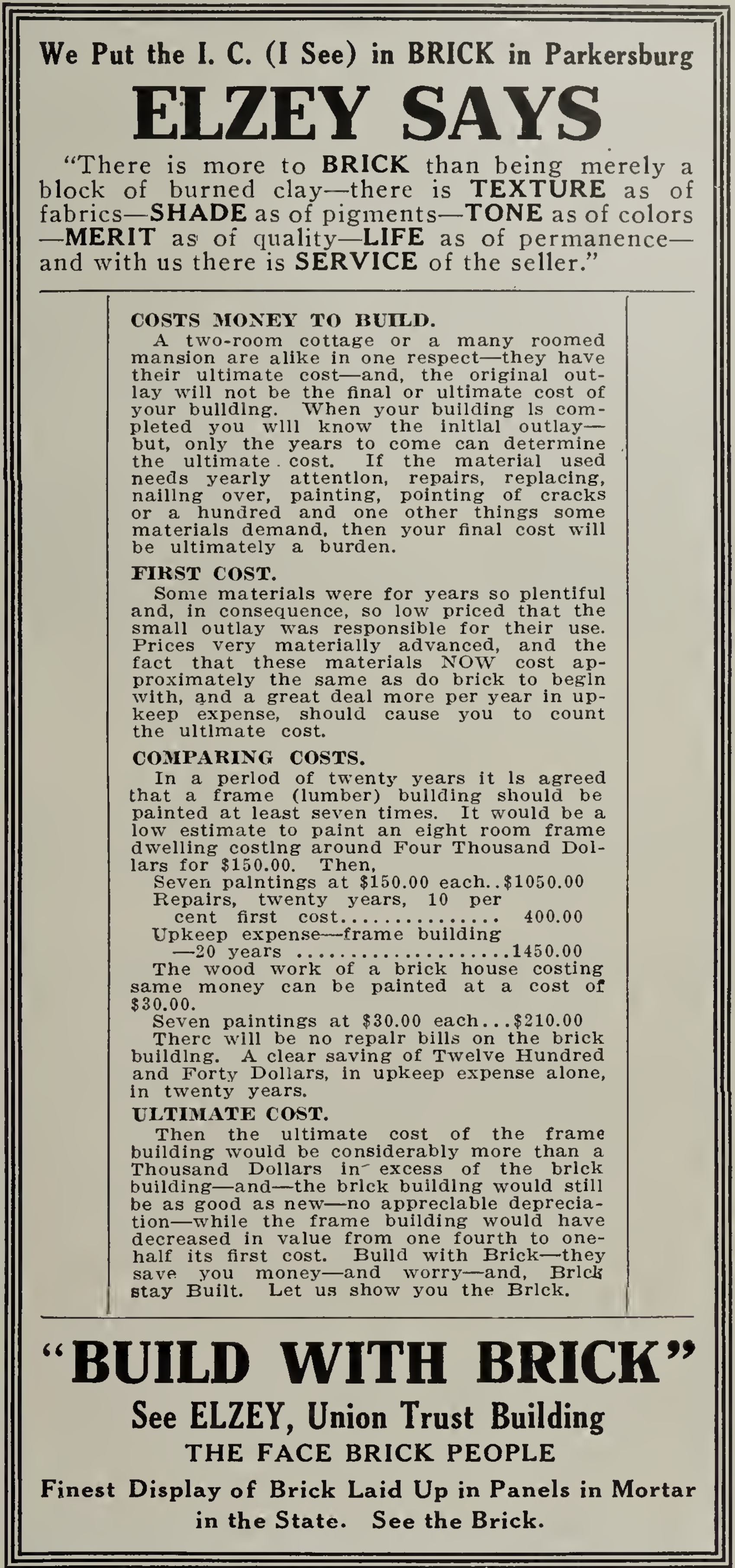
* * *

The Unusually Elaborate and Attractive Display Rooms of a Detroit Brick Dealer

The Colonial Brick Company of Detroit, Mich., which was formed this year by Harold W. Holmes, formerly president of the American Face Brick Association, and Frederick C. Solms, formerly salesmanager for Detroit for the Puritan Brick Company, recently opened very novel and attractive sales rooms.

The offices are located on the sixteenth floor of the Penobscot building and have the advantage of light on three sides. The portion of the building in which the offices are located is new, and the Colonial Brick Company put in its display while the building was being completed. This afforded the opportunity of building the partitions between the various rooms of brick. The entrance to the offices is of clear plate glass. This makes the first glimpse into the rooms extremely attractive.

The brick display consists of one large central room, with a corridor in front and wings on either side. The whole effect is symmetrical and the scheme of decoration is tied together by a gray border and corner columns of brick from the Straitsville Impervious Brick Company. The entrance to the offices on either side of the display room are thru brick arches of Fallston Fire Clay Company's "Weavetex" brick, while the uniform base around the room is built of this company's smooth flashed brick. Farther into the room and corresponding to the Fallston arches, are, on one side an arch of Kushequa Brick Company's brick, framing a panel of B. Mifflin Hood Company's tile in a most attractive design, and on the other side the Kushequa brick framing the door into the sales office.



We Put the I. C. (I See) in BRICK in Parkersburg

ELZEY SAYS

"There is more to **BRICK** than being merely a block of burned clay—there is **TEXTURE** as of fabrics—**SHADE** as of pigments—**TONE** as of colors—**MERIT** as of quality—**LIFE** as of permanence—and with us there is **SERVICE** of the seller."

COSTS MONEY TO BUILD.

A two-room cottage or a many roomed mansion are alike in one respect—they have their ultimate cost—and, the original outlay will not be the final or ultimate cost of your building. When your building is completed you will know the initial outlay—but, only the years to come can determine the ultimate cost. If the material used needs yearly attention, repairs, replacing, nailing over, painting, pointing of cracks or a hundred and one other things some materials demand, then your final cost will be ultimately a burden.

FIRST COST.

Some materials were for years so plentiful and, in consequence, so low priced that the small outlay was responsible for their use. Prices very materially advanced, and the fact that these materials NOW cost approximately the same as do brick to begin with, and a great deal more per year in upkeep expense, should cause you to count the ultimate cost.

COMPARING COSTS.

In a period of twenty years it is agreed that a frame (lumber) building should be painted at least seven times. It would be a low estimate to paint an eight room frame dwelling costing around Four Thousand Dollars for $150.00. Then,

Seven paintings at $150.00 each..	$1050.00
Repairs, twenty years, 10 per cent first cost...............	400.00
Upkeep expense—frame building —20 years	1450.00

The wood work of a brick house costing same money can be painted at a cost of $30.00.

Seven paintings at $30.00 each...$210.00

There will be no repair bills on the brick building. A clear saving of Twelve Hundred and Forty Dollars, in upkeep expense alone, in twenty years.

ULTIMATE COST.

Then the ultimate cost of the frame building would be considerably more than a Thousand Dollars in excess of the brick building—and—the brick building would still be as good as new—no appreciable depreciation—while the frame building would have decreased in value from one fourth to one-half its first cost. Build with Brick—they save you money—and worry—and, Brick stay Built. Let us show you the Brick.

"BUILD WITH BRICK"

See ELZEY, Union Trust Building

THE FACE BRICK PEOPLE

Finest Display of Brick Laid Up in Panels in Mortar in the State. See the Brick.

A Comparison in Costs Between Frame and Brick Was Made the Subject of this Ad.

Looking toward the office entrance from the inside, the effect produced is suggestive of a Colonial house front, typifying the name of the company. This effect is produced by the Western Brick Company's "Cloister" brick, using a number of different shades and effects, the treatment being set off by a white trellis with ivy trained around the door. There are also displayed very attractively, smooth and rough-face brick from the Jewettville Brick Company, rug effects from the Western Brick Company and Southern Fire Clay Company, very attractive gray effects from the Straitsville Impervious Brick Company, the new stippled brick from the Western Brick Company and a wide range of effects in both smooth and "Weavetex" finish from the Fallston Fire Clay Company. The Colonial Brick Company also handles enameled brick from the Tiffany Enameled Brick Company.

A Glimpse of One of the Colonial Brick Company's Display Rooms, From Which Some Idea May Be Obtained of the More-than-ordinary Beauty of this Company's Offices

The floor of the display room is laid with B. Mifflin Hood Company's pottery tile, while the floor of the sales office is of Kushequa Ceramic Quarry tile. The entrance, hall and areaways are laid with a special manufactured flooring, the sale of which is controlled by the Thomas Moulding Brick Company of Chicago, and handled in Michigan by the Colonial Brick Company. The furniture of the sales office is of green wicker with tapestry trimmings, making the whole effect extremely pleasing.

The Colonial Brick Company also handles shingle tile made by The Huntington Roofing Tile Company.

The company is building up a very high class and efficient organization for the distribution of clay products. In addition to Mr. Holmes and Mr. Solms, another man, well known, is Claude W. Filer, who received his early training with the Logan Brick Company and has, for a good many years, been connected with the distribution of building supplies. The company operates strictly on an open-price basis, publishing its prices on brick and adhering to them, according to the statement of Mr. Holmes.

SPICY SUGGESTIONS *for the* SALESMANAGER

"I sometimes find," said the salesmanager of a fire-brick concern, "that it pays to be a little independent, when you can afford to, as is the case at this time with more business than we can handle.

"The other day I went into the office of a manufacturer to whom I had been selling for a good many years. He had a plan on for rather a large addition to his plant and I had been angling for the business. I had come to the conclusion that he was shopping around and determined that I was going to call him. So I told him that the fire-brick trade was fast getting into an oversold condition and that if he was going to be in the market he had better get his order in right away. At that time I told him, the best we could do was six weeks and that was about the time I understood he would be ready for the brick. We were getting orders regularly, I told him, and it was the truth, and that I had called as a matter of service to him.

"He laughed a little and told me that he thought he would be able to get all the brick he wanted when he wanted it. That made me a little sore, so I got up and said good-day, adding that I was in position to promise him a shipment on six weeks to the day, but that was the best I could do and that he could take it or leave it.

"I will have to say that he was a good sport.

"'Got an order blank?' he asked. 'We might as well close now.'

"When I left the office I had that order, and it was for six cars."

In a good many lines, especially in the marketing of fire-brick, the salesman has a big club in his arsenal, if he will but learn how to swing it. Just at this time the manufacturer who is expanding his plant is well posted on how difficult it is to get deliveries when he wants them. Delays mean loss to him and serious loss. He may not be in a corner, hemmed in and ready to surrender, but he is on the anxious seat and the salesman who takes advantage of that fact is making progress toward landing the order.

Better Undersell Than Oversell

Business came rather hard for a year or so back, as clay products manufacturers and dealers remember only too well, and it is no wonder that the sudden return of prosperous conditions and the influx of orders caused more than a few concerns to overreach. Probably the momentum of the rate at which they were traveling on the hunt for business carried them into dangerous territory before it was realized.

As a matter of fact, more than a few manufacturing concerns have found themselves during the past few months with more orders booked than they could ship. And the conditions in other lines were such that they could not readily increase capacity. The result was that customers, who had depended upon deliveries at specified dates, were disappointed or handicapped by piecemeal deliveries. "Oversold," may sound good to talk about, but as a condition which affects the customer of a concern, it is not a good thing.

Particularly a new plant, that has bitten off more than it can chew, gets a black eye and the contractor or builder may be difficult to convince thereafter that when the company bids and makes its offer, what it says can be depended upon.

Again, the cost of emergency efforts to keep the plant going to the point where the business can be taken care of is pretty sure to be a tax, while the fact that deliveries are going to be strung out will make it necessary, also, for the manufacturer to wait longer for his money, and that will put a strain on the capital. It certainly hurts to have to decline business because of inability to handle it, but a proceeding of that kind at least does not lower the confidence of the customer in the concern. A salesman and a salesmanager wants to make as good a showing as he can, but he will be safer if he does not sell more than he can deliver.

Model Brick and Tile Kitchens for Residences

Clay products manufacturers and dealers are more or less familiar with the character of finish in the modern sanitary kitchens in the newer hotels, hospitals and so forth. There was a time when they were merely elaborations on the kitchen in the average home—with wooden floors and plastered or papered walls and wooden furniture. When they were given the attention necessary to keep them clean and sweet, they met the requirements fairly well.

But in these days the good hotel or the good hospital is given a kitchen which is perfection from the sanitary standpoint. There is tile or enameled brick everywhere. Shelves, refrigerators and benches are made of those materials, as well as the floors. Such surfaces can be kept white, clean and free from any chance of breeding ptomaines or spreading infection. The first cost of a tile kitchen is more or less high, perhaps, but when the job is finished, it is there to stay.

Yet most of the progress in this direction has been confined to the structures of the sort mentioned. The average residence kitchen is not much better than the average kitchen was fifty or seventy-five years ago. The bathroom has become a model of cleanliness with its tile walls, floors and porcelain fixtures, and the builders of the better class homes insist on these things. Yet the house with such a bathroom is often given a kitchen which does not represent an advance in construction from ante-bellum days.

This is something the brick salesman or the dealer who supplies the face-brick for the exterior of the house, could influence in a large number of cases. He can provide the tile for the floor, the enameled brick or the terra cotta for the walls, and the rest of the requisites. Then one such kitchen will lead to others. Not only are there fine new homes going up daily where building materials of this character might be used, but there are thousands of existing houses, owned by wealthy people, the kitchens of which might be rebuilt on such a scale, just as the bathrooms often have been. Every good housekeeper would be glad to have such a kitchen and would cheerfully submit to being informed. The field is almost a virgin one.

A Few Thoughts for the Tile Man

It is a temptation for the drain-tile salesman to conclude that the average farmer is like the Arkansas landlord who failed to fix the leaky places in his roof because, when it rained, he could not and when it did not rain, the holes did not leak. He often finds a farmer prospect deaf to his arguments except when his plowing is behind time and the ground is too wet. But during the summer when things are lovely that same farmer may see no virtue in tiling his ground. A good story is a useful introduction, but the story of the Arkansas landlord, when the farmer to whom it is told makes the application, is not flattering. A better one to fit the circumstances is told of a character in an Ohio Valley town called Uncle "Jake." During the dry spells the wags of the neighborhood used to ask him, looking up at the sky: "Think it'll rain, Uncle Jake?" "Wall," he would say, "hit allus hez." In other words there is never a time when the farmer, whose ear is available for a few moments, cannot be approached logically on the subject. When he is bemoaning the fact that he cannot finish his plowing on account of the excess of rain, is always a good time for the tile salesman to get after him. At such times a moving tale of what a good system of drain-tile would have done to put the ground in condition for working soon after downpours, can be told. When the rains are few and far between, the Uncle Jake story is always in order, while the salesman who knows his subject can paint the same moral about what tile would have done in the way of fitting the ground to hold moisture. And in the average neighborhood there is pretty sure to be one or more progressive farmer who can be cited as examples of what a good system of drainage will do.

COLLECTION DIPLOMACY

A Short Lesson in the Science of Writing Diplomatic Notes to Make the Debtor "Come Across" Whose Interest Has Been Revived in an Old Account

By W. D. Parker

THE WRITER has already explained—in the July 4 issue—an efficient and inexpensive method of renewing the interest of Mr. Slow Pay in the fact of his indebtedness and of placing him in the right mental attitude to facilitate a satisfactory adjustment of his unpaid account. But when Mr. Slow Pay answers one of the letters the work of collection is only commenced, unless he settles in full at the time. In practice it will be found that he will often pay an installment of the indebtedness, promising to pay the balance at a future date, or will attempt to settle the entire account in promises instead of cash. In either of these cases the right kind of collection diplomacy is needed to complete the work already accomplished in turning a poor account into a good one.

In order to intelligently decide on a plan of action in any given case, it is well to remember that there are just four general classes of slow debtors, and that your particular slow debtor must be first properly classified before the right method of handling him can be judged. We will consider the first class as consisting of those who were abundantly able to pay at the time of contracting the indebtedness but have since met with reverses and thru no fault of their own are unable to fulfill their obligations. The second class takes in those who are financially solvent but are given to the pursuit of interests that require ready cash and have gotten into a habit of putting off as long as possible the payment of all charge accounts. The third class consists of those whom we may call the "happy go lucky" variety, who contract obligations without at all considering their ability to meet them and who, of course, were not entitled to the credit extended them. The fourth class contains the deliberate "dead beats" who may or may not have the means to pay, but who are "law proof," and do not intend to pay any account that can be avoided.

MISTAKES A CREDITOR IS LIABLE TO MAKE

When a debtor of the first class—one who has met with reverses and is temporarily unable to pay—tells his story of hard luck, it is easily possible for the creditor to take one of two positions, either one of which is wrong. On the one hand he may feel that he had nothing to do with bringing about his debtor's ill luck, and that it is nothing to him—that the debtor should sell what he has or borrow the money—but that no matter how he has to get it his account must be paid and at once. On the other hand, if the creditor is of a kindly, easy going disposition he may simply bid Mr. Debtor take his time and pay when he gets ready. Both of these attitudes are wrong.

The correct method is to express a sincere regret for his misfortunes and, by adroit questioning, ascertain as closely as possible the exact situation and his probable future ability to take care of the account, and accept his promises for the future only to the extent that they seem possible of fulfillment. For example, it would be exceedingly unwise to accept a six month's note for $200 where the debtor will receive his income in small, occasional amounts and would be required to save up the amount to meet the note. This is too much to expect of average human nature, even with the best of intentions. The result might quite probably be a payment of $10 or $20, and a request for another six month's extension. In this case the better plan would be to ask for ten notes of $20 each, payable monthly, commencing say, sixty days from date with a proviso in each note that it should immediately become due in case of failure to pay any prior note. This offer shows a willingness to help the debtor on his feet by giving him all the time he needs and, therefore, creates good will and a disposition to exert every effort to meet the small amounts as they come due, where a demand for immediate payment that is impossible to comply with or an acceptance of a promise to pay as soon as able, both tend to cause indifference to payment that is likely to mean the carrying of the account on the books for an indefinite time.

NOTIFY DEBTOR OF INSTALLMENTS WHEN DUE

It is, of course, important that the debtor be notified of all installments as they become due, and his interest in settling the account be kept up to the same pitch as when the installment arrangement was made. Where the debtor owes a number of accounts at the time of meeting with misfortune it is clear that the creditor using helpful but energetic methods in handling the case will be the first one to receive his money, as well as to keep the debtor's good will which means future business and profit. This method should also be applied to debtors of the third class—those who contract obligations without assuring themselves of the means to pay them—with the difference that less time should be given them than if there was a real reason for asking delay outside of bad management. Small weekly instead of monthly notes are often effective in this class of cases. But, of course, the underlying principle is that the promise to pay must accord with the ability to pay, as far as this may be determined.

SECOND AND FOURTH CLASS HARDEST TO HANDLE

The second and fourth classes of debtors—those who habitually delay payment, tho solvent, and the "dead beats" who have no intention of paying at all—are the hardest to handle because in neither case do they make promises in good faith and, of couse, their promises can not be relied on. An experience of the writer while credit man for a casket manufacturer will serve to illustrate the usual real reason for slow payment by one well able to pay. A certain highy-rated undertaker was way behind in his accounts and paid no attention to monthly statements or the ordinary letters calling his attention to the matter. Therefore, regardless of his high rating, he was put upon the "high pressure" mailing list—cards sent every other day—which finally induced an answer. His excuse was that he had been putting his ready money into some new buildings, hearses, and so forth, and could not conveniently take care of the account. *In other words, he was using the casket manufacturer's money for his own business expansion!* Diplomatic correspondence failing to change his views, he was given the alternative of paying in full at once or being sued. He paid and his account went to some other manufacturer, but the point the writer is making is that no business house can afford to carry this class of accounts on any terms, and that the only way to handle this class of debtors is either to promptly reform their habit of using their creditor's money regardless of terms, or to insist on settlement in full and let some one else have the doubtful benefit of their trade.

PERSISTENCY EFFECTIVE WITH "DEAD BEATS"

The "dead beats" are the hardest to handle of all as their promises are absolutely worthless and compelling payment by law is usually impossible. As a general rule the best results are obtained by refusing to accept promises to pay in the future for longer than a week or ten days and on each failure to keep a promise, again resorting to "high pressure" mail, in some form of notice every other day,—the very persistency of which may get on the debtor's nerves so that he will pay the account in order to avoid the constant annoyance. In the writer's experience this method got the money from a notorious "dead beat" who owed almost every one in the trade and who had paid no attention to this particular account for several years, altho all the usual methods had been tried from time to time, but persistent "high pressure" mail brought a settlement in full in about three months—and best of all at a cost of not more than a couple of dollars.

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The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Preventing Radiation Thru the Kiln Door

The method that you use in building your kiln wickets and the attention that you give them reflects the amount of thought that you have put on the subject of reducing unnecessary radiation of heat from your kilns. The building of the door and its care during burning is so simple that in a large majority of plants very little attention is paid to it, in spite of the fact that it is actually the source of one of the biggest wastes, going on continually and usually so unobserved that it is often passed up as unworthy of notice.

In the ordinary periodic kiln, either rectangular or round down-draft, the hob or lower part of the kiln wall has a thickness of from thirty to thirty-six inches of solid masonry. Even then we complain bitterly at times about the enormous radiated heat losses thru this wall, which are truly excessive, yet we calmly seal up a wicket, preparatory to burning, with an exceedingly thin wall and give little thought to the ease with which heat may pass thru it when the temperature rises.

It is possible on some plants to see wickets built only four inches thick, altho more often the wicket wall is nine inches in thickness. A striking demonstration of the enormous loss of heat radiated thru these thin doors—especially when the kiln is at a high temperature—may be obtained by simply walking up to the door. The heat is often so great that it is necessary to shield the face, particularly when looking into the peep hole.

It is a simple matter to materially reduce the amount of heat lost thru this source, since it is neither difficult nor expensive to build a wicket that will have an insulating effect. Such a course is worth many times over the effort and expense put into it.

A wicket of this type is shown in the cross-section drawing in the accompanying illustration. The inside wall is built as usual, from nine to twelve inches thick and mudded over, or plastered up securely. Then, at a distance of from one to three inches in front of this wall, an outer wall is built either four or nine inches in thickness, and this is also plastered, leaving an insulating space between the two.

The kind of insulation that is to be used in the space intervening between the two walls dictates the character of the construction to be used in building the outside wall, the inner wall being of a constant design.

If it is desired to fill up this space with sand or ashes, the outer wall is not built clear up to the arch, but an opening of one foot is left at the top thru which the material may be shoveled into the insulating space after the wall has been completed. Also, the distance between this wall and the inner one rarely exceeds two inches in order that all of the filling be prevented from sinking to the bottom.

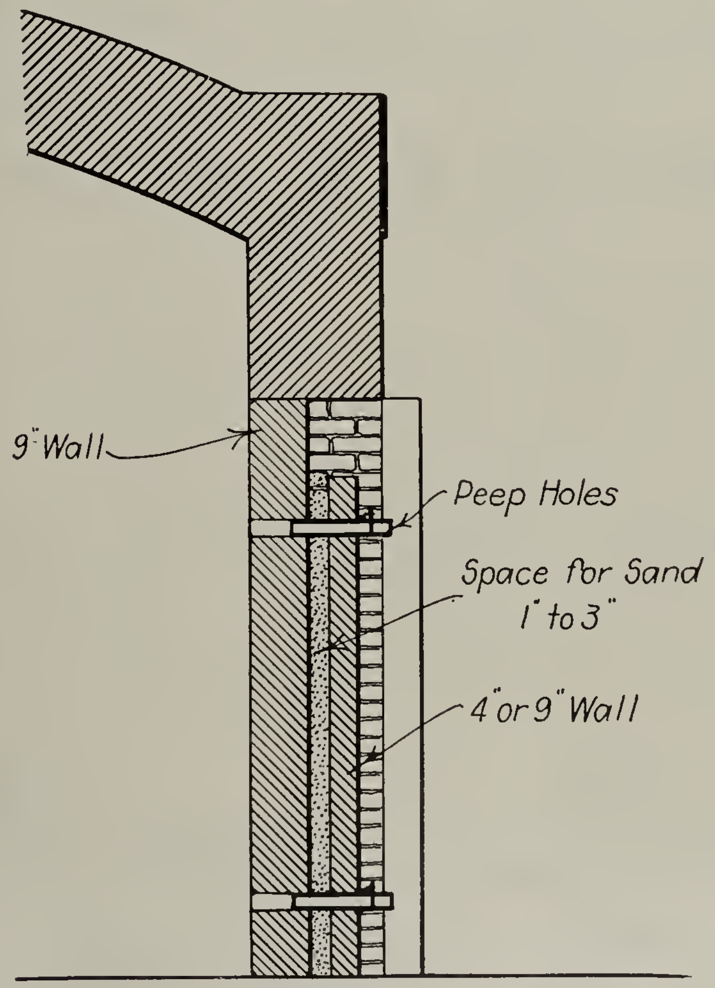
If it is desired to employ air as the insulating agent—and it makes a good one—the outside wall is built as far as three inches out from the inner wall and right up to the top of the door, being plastered as carefully as possible, so that every possible source of heat leakage may be covered up securely. This method of construction produces a dead air space that acts as an effective barrier against radiation.

This latter method is preferable to that first described, altho sand or ashes add considerably to the insulating power of the door. Their use, however, requires more attention than if air is the insulating material.

A very simple way of determining just how effective a more scientifically constructed door is in stopping heat leakage is to stand in front of it.

Another advantage of this type of wicket in addition to its heat and, therefore, coal conserving ability, is that it produces an increase in the percentage of hard burned ware. The usual pocket of approximately two hundred salmon brick is not on the floor at the door, when the kiln is opened.

In order to get the best results from the use of an insulating wicket, it is necessary to give it a due amount of attention. The wicket should always be sealed up tight with mud so that there are no cracks to allow an inflow of cold air, this being particularly troublesome around the edges of the door. Use a good slushy mud that is just sticky enough to adhere to the door and non-plastic enough to withstand the heat without any undue amount of shrinking and cracking. In order to obtain a mixture of this kind it is necessary to add a considerable amount of sand to a daub made of a very plastic clay. This tends to prevent the plaster from cracking



Cross-section of Wicket, Showing Method of Insulating Against Excessive Heat Losses

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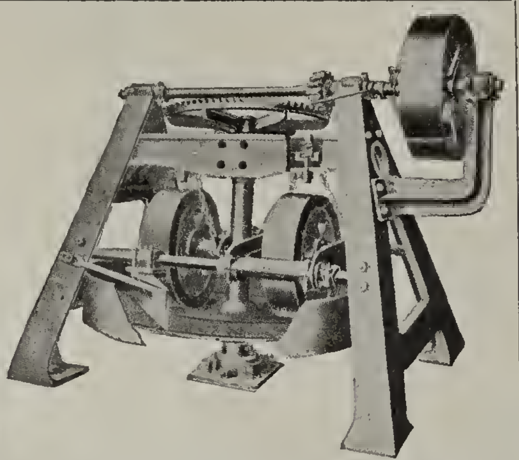

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and consequently lessens the amount of attention that is necessary to keep the door in good condition.

Apply the slush with an old sawed-off broom, painting over the door often during the burn. This guards against leaks and preserves a workman-like appearance on the door.

It is not so essential to keep the lower part of the outer wall sealed as tightly when sand or ashes are used as the insulating agent. In fact, it is often advisable to leave a few small openings at the bottom of the outer wall large enough to allow the material to seep out as it sinks downward in the cushion. Unless taken care of in some such manner, the filling may produce too great a pressure upon the outer wall, causing it to fail. As the material is forced out of the cracks it can be shoveled back between the two walls over the top of the outer one.

It is also necessary to make provision for peep holes in the double wicket, and the manner in which they may be inserted is shown in the accompanying illustration.

The Belt Lap Problem

We have often read that belt joint laps should be made to run as shown in Figs. 2 and 3; that the "direction of travel of the belt" determines the direction of the lap. That, however, is not always strictly correct. In certain cases it may be best to run the lap as shown in Fig. 1.

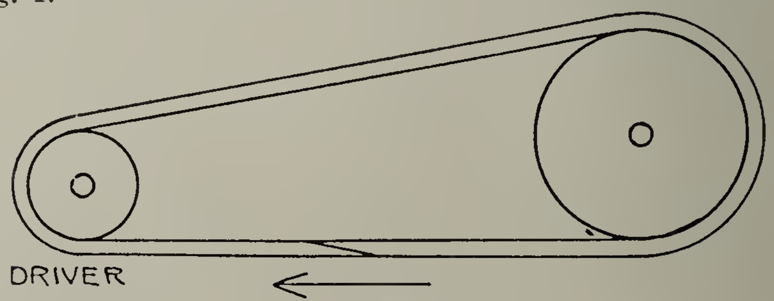

Fig. 1

Where one pulley is real small in comparison with the other, and where there is liable to be considerable slip on the small pulley as frequently happens, the small pulley being the driver, it is plain that the lap should be the "other way," as shown in Fig. 1. The lap should lay so that the action of slip tends to smooth out the lap in the right direction and not "roll it up." If, in Fig. 1, the lap were run as we are usually instructed, the small pulley would tend to "unpeel" the joints.

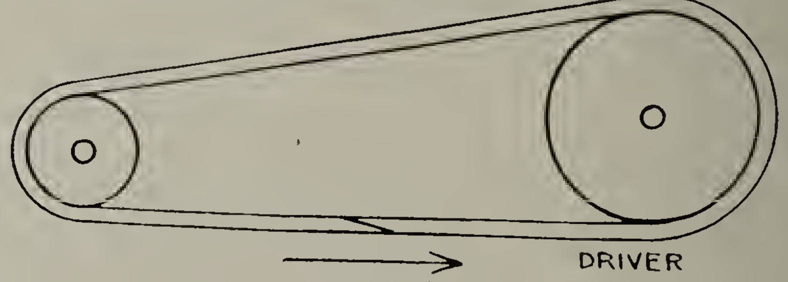

Fig. 2

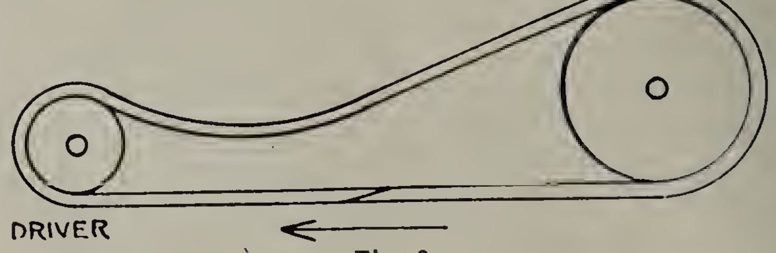

Fig. 3

In Fig 2 it is assumed that most of the slip, again, will occur on the small pulley. Hence the direction of the lap as shown.

In Fig. 3, I am assuming that there is no slip. There is plenty of arc of contact on both pulleys. There will be the usual belt creep, of course, on both pulleys. The direction of creep is always "toward the tight side" and an unpeeling action is inevitable even if there is no slip. However, when there is no slip the direction of the lap should lay as per Fig. 3.

With these points in mind it is evident that we must do a little thinking before deciding on the direction of the lap.—*Copyright,* 1916, *by W. F. Schaphorst.*

Minimizing Dust in the Grinding Room

That the grinding department of any clay plant is a dusty place, very few will deny, the density of the fine particles in the air being dependent upon the character of the clay and the manner in which it is disintegrated. A dry pan, jaw crusher or any other piece of equipment that breaks the lumps of raw, unmoistened clay into a workable size in an exposed location is especially a prize winner at raising dust.

Furthermore, a goodly proportion of the large plants find it advisable to lay the floors in this department of a smooth, solid and substantial material, concrete usually being the material employed for safety, sanitation and outward cleanliness.

In order to remove the dust from these floors after it has settled during the day, some mixture or compound is necessary to hold it to the floor so that it will not become suspended in the air again to resettle after the sweeping has been finished. Or some thing may be desired that will hold the dust to the floor as soon as it settles the first time.

What has been found to serve this purpose excellently is a mixture of boiled linseed oil, thinned with gasoline to such an extent that it can be sprayed onto the floor. The floor, however, must be perfectly dry in order to get the most good from the application of this dust preventative. Of course, care must be exercised in the spraying of the liquid, as it is inflammable and might be the cause of a disastrous fire, if handled improperly.

This simple remedy will be found to produce much more pleasant surroundings for those working in the grinding room, besides materially lessening the grounds for the claim that a clay plant is an unhealthy place in which to work.

⁂

Bureau of Standards Helps Discover Clay Deposit

The Bureau of Standards, Department of Commerce, is certainly proving an efficient help to business men and manufacturers thruout the country.

Just recently a Florida man conceived the idea (which, by the way, is not new) that a clay cup for getting the turpentine from the trees might prove better than those used at present, especially since the present ones, made from another material, are causing much trouble.

A sample of the clay on his property was sent to the bureau to see if turpentine cups could be made from it. Not only were some very fine cups made, but experts at the bureau discovered that the clay was of an excellent quality for the making of vitrified paving-brick. As a result of this, the man is going to sell the property at a good figure to a brick concern.

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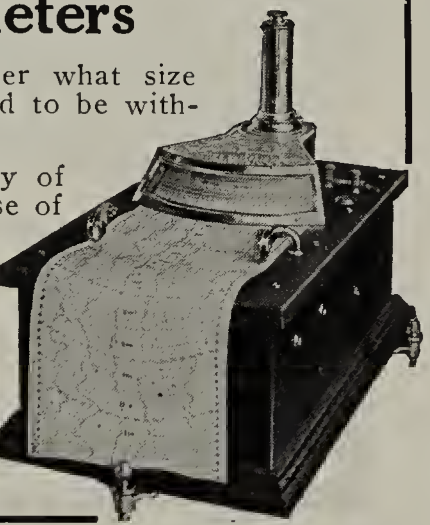

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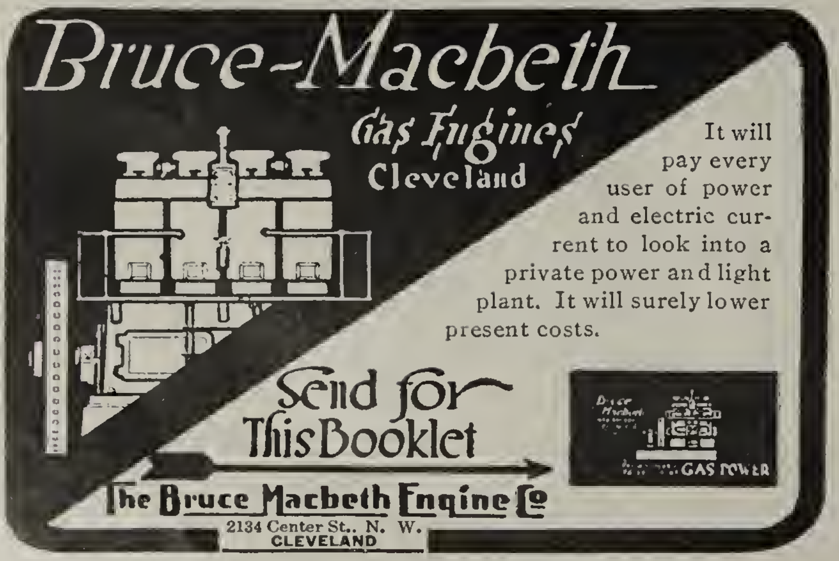

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Differs with Mr. Lovejoy on Producer Gas

The use of producer gas in the firing of periodic kilns—no matter what system of burning is used—is a subject of growing interest among those who are constantly aiming to secure the highest efficiency, which means minimum waste, in the burning of their product. Therefore, any information concerning this subject is welcome to a large majority of clay products manufacturers, provided, of course, that it is practical, being founded on facts and experience, and not theoretical. For this reason, the following letter from J. C. Harris, a mechanical and combustion engineer of Pittsburgh, Pa., is given in this place for whatever value it may be to our readers:

Having had some little experience in the use of, and possessing a modicum of knowledge, both technical and practical, in the application of producer gas from a fuel standpoint, I take this opportunity to correct what I consider a piece of misinformation prejudicial to the best interests of the clayworking fraternity at large.

The application of producer gas to periodic kilns has been strongly advocated within the past two years, and several installations are now operated with marked economy. In discussing the question with brickmakers I have had several instances where parties called my attention to the statements made by Ellis Lovejoy, in his book entitled "Economies in Brickyard Construction and Operation." Owning a copy of the book, I looked it up and on page 65, in Chapter IX, under the caption "Use of Producer Gas in Burning," I found the statements actuating my remarks below.

Quoting from Mr. Lovejoy's book, verbatim:

"(1) Is there any economy in the use of fuel gas? Considered solely from the standpoint of fuel consumption, there is no economy, but on the contrary, quite a little loss.

"The gas producer gasifies part of the fuel at the expense of another part. Some portion of the fuel is actually consumed in producing the gas, and this fuel is represented in the initial heat of the gas, which may be about 700 degrees F. If the gas cools before it reaches the kiln, all this heat is lost, and the fuel which generated this heat is wasted. We make up from the report of the United States Fuel Testing Report the following data: The average of twenty-four coals tested show a heating value of 155.8 B. T. U. (British Thermal Units) per cu. ft. of gas. Each pound of coal as fired averaged 52.6 cu. ft. of gas, equal to 8,195 B. T. U. Each pound of coal used in the producer plant during the producer test averaged 47 cu. ft. of gas, equal to 7,323 B. T. U. The average of the coal as fired was 11,583 B. T. U."

The figures in the foregoing are reasonably correct, insofar as they pertain to power gas; that is, a gas which has been scrubbed, cooled and the tar extracted. Such a gas utilized for fuel purposes as applied to periodic kilns would come within the range of losses described, but in actual practice, conditions are entirely different.

For instance, taking a bituminous coal containing 55 per cent. of carbon and 32 per cent. of volatile combustible (approximating Pittsburgh coal). Now in each 100 lbs. of coal we have 55 lbs. of carbon, of which say 50 lbs. are burned to carbon monoxide (CO) and 5 lbs. carbon dioxide (CO_2). By handling the producer properly one-fourth of the oxygen is derived from the steam used in blast and three-fourths from the air. The 32 lbs. volatile or hydrocarbons will consist in slightly varying quantities of hydrogen gas (H); methane, marsh gas

(CH_4) and ethylene (C_2H_4). These volatile hydrocarbons are taken on 20,000 heat units to the pound classed as marsh gas. These I tabulate as follows:

50 lbs. C burned to CO	116.66 lbs.
5 lbs. C burned to CO_2	18.33 lbs.
32 lbs. vol. HC (distilled)	32.00 lbs.
80 lbs. O are required of which 20 lbs. derived from H_2O, liberate H	2.50 lbs.
60 lbs. O derived from air, are associated with H	200.70 lbs.
	370.19 lbs.
Energy in 116.66 lbs. CO	504.554 B. T. U.
Energy in 32.00 lbs. vol. HC	640.000 B. T. U.
Energy in 2.5 lbs. H	155.000 B. T. U.
	1,299.554 B. T. U.
Energy in coal	1,437.500 B. T. U.
Per cent. of energy delivered in gas	**90.0**
Heat units in one pound of gas	3484.
Heat units in cubic foot of gas	229.2

The energy is calculated from weight and is strictly correct. The gasification is theoretical for the conversion of this particular coal and will very closely approximate the above results, provided the temperature of the gas is not allowed to fall below 300 degrees Fahrenheit at the burners, below which point the hydrocarbons will condense. A sample of the above gas, scrubbed, cooled and analyzed will show energy of about 75 per cent.

Disposing of Mr. Lovejoy's enormous initial producer loss, will state that the actual producer loss in no case should be more than from 15 to 18 per cent. He fails entirely in taking notice of the steam used in blowing the producer and its great capacity for absorbing heat when dissociated by passing thru an incandescent fuel bed. The steam being H_2O (water), the hydrogen is liberated as hydrogen gas and oxygen (O) of carbon dioxide (CO_2) in the high temperature zone of the fuel bed. The hydrogen gas when burned in combination with oxygen, derived from the air in the proportion of 1 lb. hydrogen to 8 lbs. oxygen, the result is 9 lbs. H_2O, or water. The heat then generated is 62,000 B. T. U. This condition will not take place in any kiln and, if it did, a loss would result due to condensing the water with the ware in the kiln. The result of this reaction usually leaves the kiln as superheated steam, only condensing in the atmosphere, in which case the heat value of hydrogen predicated on double the air supply necessary will be about 49,750 B. T. U.

As compared with solid fuel direct-fired, the economy from the use of producer gas in burning periodic kilns, whether up or down draft, is considerable. Any gaseous fuel permits of a more uniform control over the proportion of air necessary for complete combustion than can ever be developed with the best constructed furnace direct-fired. Also a gaseous fuel at all times maintains a constant and uniform temperature. Owing to the properties of producer gas a long, lazy flame is developed, reaching all parts of the kiln.

Mr. Lovejoy says: "It matters not under what condition you fire producer gas, you will get less value from the fuel than if direct-fired."

I do not know if the gentleman has reached the millennium in furnace construction or has a process for calibrating the thickness of fuel bed to the kiln draft in order to, at all times, get the proper volume of air thru his fuel bed, or has any more intelligent firemen than I have ever been able to come in contact with. Any brickmaker will, I think, agree with me, if he has ever taken pains to examine his ash pile, especially after a rain, that from 30 to 60 per cent. of the volume of it is carbon. The ash pile from any kiln is burning for days and days after the kiln is closed.

The loss in free carbon with ashes from a producer is very slight. The same coal, fired in a producer as used on any plant direct-fired, will show a saving in actual practice of from 30 to 40 per cent. in favor of the pro-

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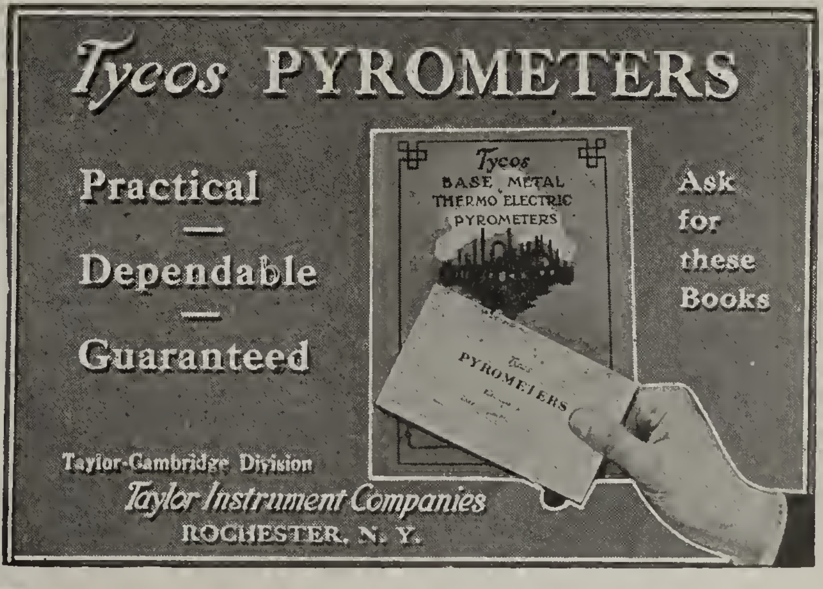

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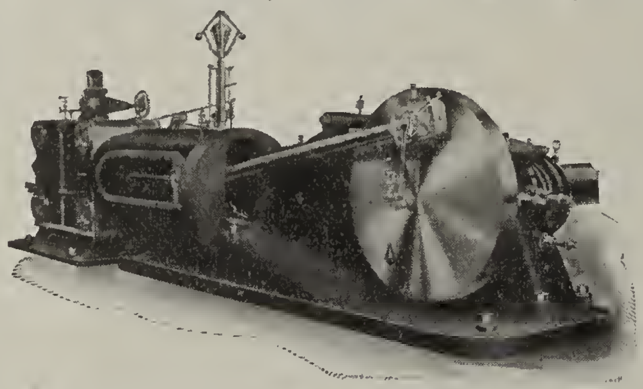

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ducer. The reason why such economy aligns itself on the side of producer gas firing is that no more air than is necessary for combustion, with a slight excess under oxidizing conditions, need be admitted to the furnace, where, as in direct firing, fully one-half of the coal consumed in burning clay ware is utilized in heating excess air.

Actual practice in the use of producer gas for burning clay ware and the many advantages apparent to users thereof is its greatest recommendation.

Quoting further from Mr. Lovejoy's book:

"(2) What temperatures can be obtained from producer gas?

"It frequently happens that a manufacturer is willing to sacrifice fuel in order to get higher temperatures, but he should not attempt to use producer gas. Fuel gas is a very lean gas, and is not suitable for high temperatures when fired cold in periodic kilns. In fact, fired cold, assuming 25 per cent. excess of air for proper combustion, and kiln radiation loss of 20 per cent., it would be difficult to get above Cone 3, and under less favorable conditions which often prevail on a brick yard, it will be impossible to get a temperature of Cone 1."

Mr. Lovejoy is wrong again. Producer gas contains in gaseous form all the elements in the coal plus the added hydrogen derived from the steam of blast.

He specifically states that under certain conditions "it would be impossible to get above Cone 3 and under less favorable conditions, which often prevail on a brick yard, it will be impossible to get a temperature of Cone 1."

Now Cone 1 is 2102 degrees Fahrenheit and Cone 3 2174 degrees Fahrenheit—comparatively low temperatures, generally speaking. These temperatures are equally impossible with the best coal if a furnace or fire hole is too small and will not supply the kiln with a sufficient volume of heat. The same degree of temperature can be obtained in the burning fuel bed of one pound of coal as in the burning bed of one ton; the merest tyro knows that one ton will do more than 1 lb. A furnace properly constructed to burn ware to Cone 3 would be entirely inadequate for burning silica brick to Cones 19 or 20, or for magnesite burning to 3000 degrees Fahrenheit, tho the same coal be used.

Therefore, is it not just as reasonable to assume that with proper volume of gas, temperatures way in excess of Cone 3 can be attained with the same relative per cent. of economy over hand firing? From my own experience I know this to be the fact. For instance, a certain clay in standard building brick, burned to Cones 3 and 4, required from 1,400 to 1,600 lbs. of coal per thousand. With producer gas the same temperatures were reached in one-half the time with three-fifths of the coal consumption and could be raised considerably higher were it necessary.

In justice to the brickmaker, I deem it fair to rebut the erroneous statements in Mr. Lovejoy's book. This book is on sale and within reach of all and emanating, as it does, from a high source it naturally carries the weight of authority. The average brickmaker has a hard road to travel—labor and fuel costs piling up with inadequate returns and compensations for his labors. The fuel expenditure is the one big leak about the plant to drain his profits.

With very few exceptions his costs cannot be reduced except in the burning of his ware; producer gas is the one medium by which this end can be brought about without any great investment and without disturbing his present kiln arrangement.

The "Letter Box" is our open forum. If there are others that feel as Mr. Harris does on this subject and who have had experiences that bear out his statements, we would only be too glad to hear from them, if they will write us a letter. On the other hand, if there are some who disagree with the arguments presented above in support of the use of producer gas in firing periodic kilns, if they will present their case, they are assured of a hearing. It is only by a frank and full discussion of the clayworker's problems that the fog and mist can be cleared away from the true course to follow.

Convincing the Farmer to Build with Brick

The fact that the farmer is a good prospect for the manufacturer of brick and other clay products is not new. It is a subject upon which already much has been said. The events of the past few years have placed the country gentlemen in the limelight as regards his ability to buy and his desire to enjoy more of the comforts of city life. Brickmakers and manufacturers of hollow-tile here and there are waking up to this fact and are going after this prospective business with a zest that promises success and financial gain. As an encouragement to those who have not already seen the advantage of such a course, and as a matter of interest to those who are making the farmer one of their best customers, the following letter from an officer of the Adams Clay Products Company of Indianapolis, Ind., is given below:

An interesting thing happened to us the other day. A farmer came into our office with his contractor—a carpenter—and wanted us to figure on brick for a foundation.

I asked him why he did not want to build his house entirely of brick, or at least construct a brick veneered dwelling. The carpenter, answering for him, promptly said: "Why, that would cost twice as much."

I "got hot" and told the carpenter that he could not build even a hen house for me if he did not know any more about the comparative cost of brick and frame construction than that, and furthermore that the man who was pretending to serve his patrons who was not in a position to do it any better than that did not deserve a contract.

I then turned to the farmer and asked him how much more he thought it would cost him to build his house with brick and he said: "Why fifty per cent. anyway."

Then I said: "If you think it will cost fifty to one hundred per cent. more your neighbors will think the same thing, therefore, your house, in the estimation of the public, will be worth from fifty to one hundred per cent. more than a frame building. When you want to sell your farm you can dispose of it much more easily and at a better price if it has a brick house upon it." Then we got right down to facts and I figured out the cost with the farmer and contractor, first for a frame and then for a brick house of the same size.

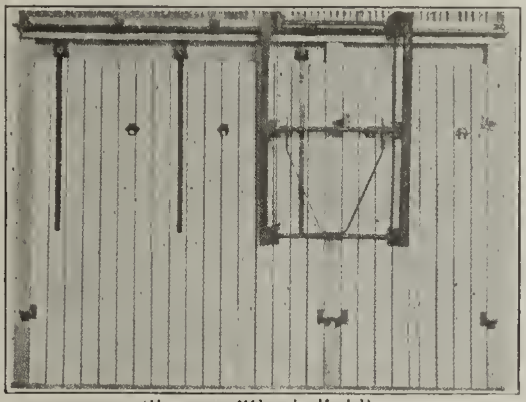
We computed the cost of lumber, nails and paint, also the labor involved in erecting the wooden dwelling, all of which the carpenter agreed to because they were his own figures. Then we figured the cost of brick, mortar and laying for a fourteen-dollar brick, to which also the carpenter agreed, and it figured out seven per cent. more for the brick house than for the frame.

On the strength of these facts, the farmer gave us an order for the foundation, porch and chimney of brick on that day, but two weeks later he came back with his wife and son and ordered brick for veneering the entire house. I asked him then what caused him to make the change from his original plan and he answered: "I had other carpenters and other brick men figure the job out with me and their figures were within less than fifty dollars of what you said it would cost me."

The farmer, his wife and son actually thanked me very kindly and seemed to be very much pleased with what I had done for them. The total cost of the house in frame was to be about $3,000. The brick veneered home they said would cost less than $3,250.

It is a pleasure to do such business as this and beats fighting the other brickmen for the business that naturally comes our way. We wish the facts, such as we have stated above, would get into the hands of prospective builders. We at least write them to you so that brother brickmakers can have the benefit of our experience. You may depend upon it, we will repeat the incident with the farmer as often as we can. We

Keep the Heat in Your Drier


Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

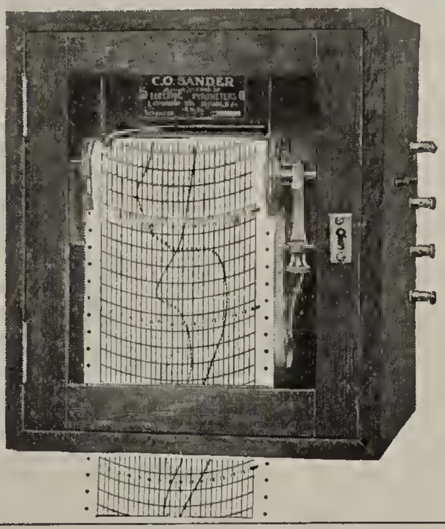
Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction. Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.

Guessing Is Poor Business



You don't guess at the time of day. You look at your watch and KNOW. Why guess at temperatures? It is infinitely harder to do it correctly, almost impossible. The money lost as the result of one guess would pay for a Sander. Ask

The Sander Instrument Co.
136 19th Ave., Irvington, N. J.

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

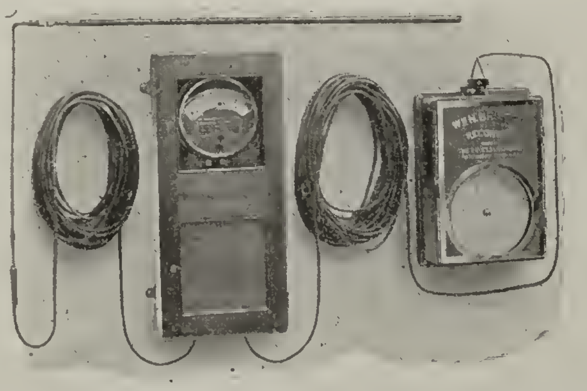
PERFORATED METAL SCREENS

As required for BRICK MAKERS USES.

PERFORATED SHEET METALS
HENDRICK MANUFACTURING CO.
CARBONDALE PENNA.
OF EVERY DESCRIPTION

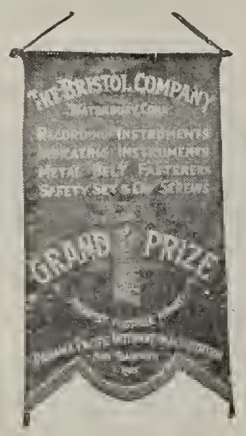
New York Office
Room 524 Cortlandt Building

Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.



Bristol's Pyrometer Installation

For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.



Write for Bulletin 205

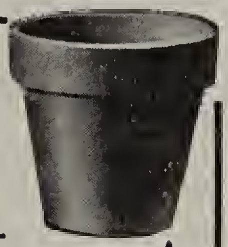
THE BRISTOL CO.
WATERBURY, CONN.

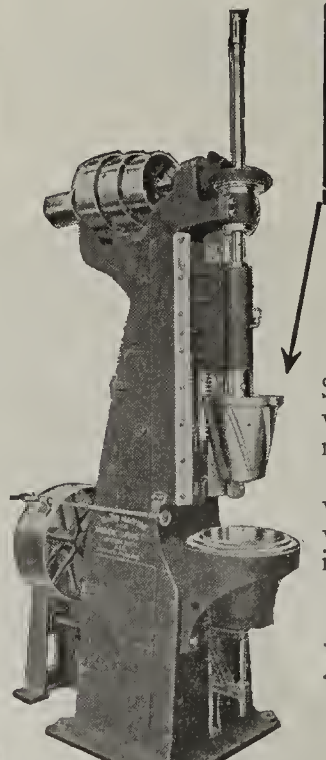
BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO

Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the





Baird

Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

have had other similar experiences, but this has been the most impressing. I never dreamed that I had convinced the farmer the first day he came to my office. The truth about the matter is when we talked about it first I said: "When two other farmers drive by your house and see it showing up so fine, they will talk about it and say just like you said, 'why that house costs $5,000 anyway.'" That is what caught his fancy and reached his sound business judgment and when a salesman can do that, he has made a sale.

The key-note of the above letter is that the writer realizes the futility of fighting against his competitors for business of long standing when so many attractive prospects are within easy reach, if the brickmaker only knew it. We trust that someone will take the experience of the Adams Clay Products Company to heart and make an effort to reach out after the farmer who is willing and able to buy burned clay building materials if he can be convinced of their economy, durability, beauty and strength.

Help Wanted for a Worthy Cause

Every once in awhile we receive a letter from one of the locals of the Bricklayers', Masons' and Plasterers' International Union, asking for information and suggestions concerning a "Build With Brick" campaign in their own town. We usually send these correspondents what information, data and literature that we have, commending their enterprise and urging them on to greater efforts. It is our belief that these efforts on the part of the bricklayers and masons to spread the gospel of permanent and fire-safe building, should not go unnoticed and unsupported by the clay products manufacturer, who is able and should be more than willing to extend a helping hand. The following letter from Hal. B. Stroup, president of the Ohio State Conference, B. M. and P. I. U., Martin's Ferry, Ohio, is characteristic of the letters which we receive, with the important exception that it outlines a much broader and comprehensive movement than is usually undertaken by the average local. Mr. Stroup's letter follows:

> As president of the Ohio State Conference of the bricklayers' union, I am starting a "Build With Brick" movement over the state and have appealed to the firms of several towns and cities manufacturing building brick, to donate stickers or any literature that will serve to boost and advertise the business. I have received some of the enclosed from the Standard Stone and Brick Company of Bellaire, Ohio, but not near enough to cover the state. I am planning to have each secretary supplied so they can advertise in their respective jurisdictions. Can you supply me with anything of this sort and can you give me any statistics as to the difference between brick and frame as to cost, upkeep, cost of heating, fire insurance, etc.? I am having each secretary take up the question of establishing fire districts in the towns where they have none and extending the ones that already exist. Some time later we will try some newspaper advertising. Can you suggest any other way to boost the movement?

We have replied to Mr. Stroup, sending him a quantity of our poster stamps, together with considerable information concerning the questions which he asks with regard to the advantages of brick construction. This is an opportunity for the brickmakers in the state of Ohio to do something worth while, by sending Mr. Stroup what educational literature they have. The fostering and encouraging of this movement on the part of the clayworking fraternity will make every mason in the state a booster for brick.

It will be noted that the bricklayers hope to use the local newspapers. This plan is certainly commendable and should be productive of considerable favorable sentiment for burned clay building materials.

The Semi-Monthly Trade Review

LOOKING THRU the telescope of precedent upon conditions prevailing at the present time in building operations thruout the country, wonder may be sincerely expressed at the rosy aspect in which they appear.

Now is the time that the lull in the storm of rush orders usually occurs — that period when brickmakers catch their breath for a slight respite from the strenuous days of the earlier and "boom" months. Yet conditions exist today that compare very favorably with above-normal times of other years.

Permits issued thruout the nation seem to be steadily climbing the ladder of value; few, if any, appreciable drops may be read in the barometer of national building activity. Producers of burned clay products entering into building construction, it seems, are to experience the activity that has prevailed during the early part of the year for some time to come.

JUNE BANK CLEARINGS SHOW BIG GAIN

Not only does this condition hold true in building, but prosperity seems to be pretty generally distributed thruout the industrial fraternity at large. Possibly the most accurate measure of general good times is the volume of bank clearings, reflecting the condition of the money market. All the leading statistical comparisons make remarkable exhibits, with June clearings forty-six per cent. greater than in the previous year and forty-eight per cent. in excess of the total of 1914.

Scanning the conditions as regards building alone, a most encouraging situation is seen, especially from a comparative standpoint. When we turn our attention to the Pacific Coast, however, we encounter the one big exception to national building prosperity. A state of conditions is found there that does not look good for the immediate future of building in San Francisco.

DOCK STRIKE HINDERS TRADE ON THE COAST

The dock strike, previously reported as being dangerous to the welfare of those engaged in the sale of building materials should it continue for many weeks, is still going on, causing a tie-up. The situation has been made especially acute by the cessation of all lumber shipments,

"NATCO'S" Way is to get the clay for their famous Hollow-Tile with Marion Steam Shovels. "Natco" has had plenty of opportunities for testing "Marions." The first purchase was made many years ago; now they have half-a-dozen "Marions."

Low Operating Cost, Large Capacity, Few Repairs Needed are some of the reasons this customer has given for making "Marions" his choice. Yet there's nothing "special" about the Shovels we make for "Natco."

You might find it profitable to do *your* digging with a "Marion," too. Why not write us now, without obligation, for particulars?

Marion
We Make Excavating Machinery of Every Description
Branches:
Atlanta, Chicago, New York, San Francisco, Seattle
THE MARION STEAM SHOVEL COMPANY
Established 1884
MARION, OHIO
117

¶**The most widely known automobile manufacturer in the world recently said, in an interview, that he "does not believe anything he does not understand."**

¶**Yet where would this old world be if all our great leaders of progress had acted on that kind of philosophy?**

¶**You know—as we know—that progress comes from thought rightly directed—from hope and faith—from perseverance.**

¶**The clay products industry is no exception to this rule, and those who are making greatest progress are getting helpful ideas from every possible source. They are the ones who read and absorb the advertising—who investigate—who are open to conviction.**

¶**Try it on yourself and see how much it means to you.**

The Same Work with Less Power
The ALL-STEEL No. 1

K-B PULVERIZER

Consumes only 10-15 h.p. to reduce 4-7 tons of stone, or 8-13 tons of clay per hour from 3″ to dust. Larger machines have the same high efficiency.

It is built entirely of steel and lined throughout with manganese hardened steel plates. It will endure the hardest service.

The hammers are adjustable to compensate for wear and to keep the product uniform.

Easy access is afforded to the inside of the pulverizer, as the screens slide out of the lower casing like drawers.

Write today for full details to the

K-B PULVERIZER CO.,
Inc.
86 Worth Street
New York City

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA. – CHICAGO, ILL.

Don't Take the Risk

If you make a good brick, why endanger its reputation by permitting the use of an inferior cement? Good brick should be set in good mortar and GOOD mortar is made of *good* cement.

A paving block doesn't get a fair chance if imbedded in poor concrete or set in an uncertain cement.

Lehigh Cement Is Dependable

Its mixture is uniform—high in strength—the same in color and fineness, and helps make permanent buildings and ever-lasting pavements.

LEHIGH
CEMENT

Cement Grout for Permanence

which, of course, materially effects the movement of brick for building purposes. Because of this, many bricklayers have been thrown out of work temporarily.

The price of common-brick, however, has risen in the face of the above-outlined conditions, and is now selling at $8.50 per thousand on the yard and $10 in San Francisco. This advance was not made because of the strike, but arose from the increased cost of manufacture in that vicinity. Face- and fire-brick are commanding their usual prices, altho a tendency towards a rise is seen.

CENTRAL STATES ENJOYING ACTIVE BUILDING

Departing from this division, we find, as we look toward the central states, optimistic conditions prevail in Minneapolis, St. Paul, Duluth, Sioux City, and Des Moines—all of which are enjoying unusually active building. In Duluth, especially, have operations been abnormal, the reports of each succeeding week indicating a rise in the value of building, altho a decline in the curve of activity has long since been due. During the month of June the value of permits issued at this point showed a gain of more than $22,000 over the figures set for the corresponding month of last year. Due to the tremendous expansion of the steel industry, the phenomonal gain of almost 650 per cent in the value of the first six months' building in 1916 was registered over that of the same period last year. The value of construction during that period of this year amounts to $8,829,465, as compared with a value of $1,370,493 for last year.

It has been a comparatively long time since the activities of "Cream City" have received recognition in this review. However, reports from Milwaukee show that it is continuing, without interruption, the active work that has been going on since the opening of the season. Most of the building represented by recent permits is in the form of residential construction, altho many big jobs, for which permits were issued earlier in the season, are still under construction and deliveries of materials are still being made. The value of building for June in Milwaukee is $57,821 in advance of the corresponding period of 1915, while an increase of $1,878,494 was made in the value of building during the first six months over that of the same period last year.

INDUSTRIAL STRUCTURES FEATURE AT CHICAGO

In Chicago building activity centers around the erection of a record-breaking number of industrial structures that are causing an enormous absorption of materials. The value of this type of building in June of this year increased about 140 per cent. over the same period in June, 1915. Residence construction has also assumed a notable place in the spotlight of Chicago's unprecedented activities for this time of the year, the two together having more than doubled the value of building over the corresponding period of last year.

In Louisville, Ky., there is a considerable volume of business being received by brick manufacturers and dealers in the way of small orders for immediate delivery. Most of the activity at this time, however, is in making deliveries on orders already on the books or relating to inquiries for future business. Several of the plants in the Louisville district are catching up with what was practically an oversold condition at the first of the season and, with no exceptions, the principal plants are running full time, with a few operating day and night. Prospects for business for the latter part of the summer are reported to be excellent.

NOT MUCH BUILDING GOING ON IN ST. LOUIS

Some little hesitation in going ahead with building in St. Louis because of reported high prices for material and a labor scarcity, has caused a slight drop in the building activity of that city. However, prospects are bright for an early resumption of all temporarily abandoned undertakings.

At all Ohio and Michigan points of interest the demand for brick is holding up well. Detroit still continues its heavy building and the local brick plants are working to capacity trying to supply the demand. While a curtailment in business, when compared with conditions earlier in the season, is being felt in Ohio cities, yet a considerable amount of building is at present going on. The call for face-brick is reported as being especially good. Prospects for the future are fair, altho some manufacturers claim to foresee a "boom" for the latter part of the season.

COLUMBUS SHOWS TWENTY-FIVE PER CENT. GAIN

In Columbus, the building reports for the month of June show an increase of about twenty-five per cent. over the same period of last year, the value of the permits issued for that month being $557,370, while those of the previous year amounted to $410,370.

At Eastern points conditions, while not very far in advance of those usually existing at this time of the year, are considered good when due credit is given for all of the restraining influences that tend to restrict building this year. Very favorable figures are available at Pittsburgh and Philadelphia, and while Buffalo, N. Y., is somewhat behind the procession, yet the absence of general prosperity at this point is being made up for by the construction of several factories and other industrial buildings.

LABOR DISTRESSING FACTOR IN NEW YORK

The New York market is still fighting the strangle hold that labor has upon it, both in the manufacturing and building divisions. While many of the strikes have been settled and the majority of yards are again in operation, there are several others still grappling with the problem of paying munitions-plant wages to common-brick plant laborers. The strike of builders' helpers in New York has also had the effect of lessening the demand for brick. A reduction from $8.25 per thousand in May to $7.50 and, in many cases, $7 per thousand for Hudson commons at the present time, has resulted from the light demand now existing.

IN *the* WAKE *of the* NEWS

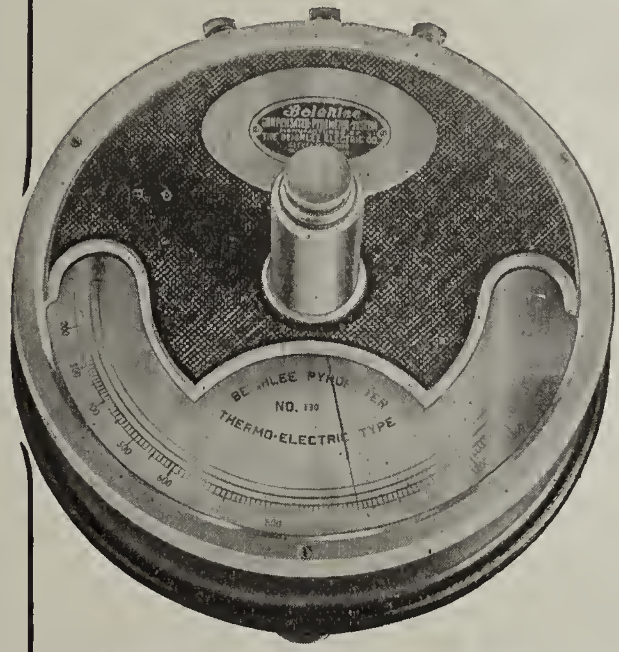
Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Walter S. Dickey of Kansas City, Mo., one of the Middle West's best known sewer-pipe and hollow-tile manufacturers, is a candidate for the Republican nomination for United States senator.

Elmer J. Emmons, for many years associated with the Denver (Colo.) Fire Clay Company, died at his

WHAT A GREAT SATISFACTION!



Isn't it a lot of satisfaction to your burners to know they can simply look at an indicator any time and know exactly how much temperature they have? And here's the indicator that helps them to know—it is furnished only with the

BEIGHLEE "THE PYROMETER WITH A CONSCIENCE"

You know how important it is to have a pyrometer that is absolutely dependable at all times. Well, that's just what you have in the Beighlee.
Let us send you data to prove our claims.

BEIGHLEE ELECTRIC COMPANY
CLEVELAND, OHIO
HERMAN A. HOLZ, Hudson Terminal Bldg., NEW YORK CITY
Representative in New England States

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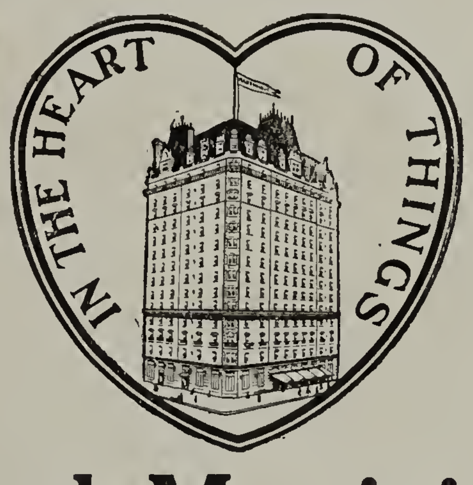
use
of
T[illegible]ylor


IN THE HEART OF THINGS

600 Rooms
400 Baths

Hotel Martinique
Broadway, 32d St., New York

125 pleasant rooms, with private bath, facing large, open court
$2.50 Per Day

157 excellent rooms, with private bath, facing street, southern exposure
$3.00 Per Day

Also attractive rooms from $1.50.

The restaurant prices are most moderate. Equally convenient for amusements, shopping or business. One block from Penna. Station.

KOPPEL Dryer and Clay Cars

Electromobile Industrial Trucks

reduce transportation cost

Trucks, Tractors and Trailers pay 100% per year on their cost.

Write for catalogs and operating cost data.

PLANT KOPPEL, PA.

ORENSTEIN-ARTHUR KOPPEL CO.

Branches throughout the world.

SALES OFFICES
New York
Chicago
Pittsburgh
San Francisco

The "Electromobile"-Electrically Driven Industrial Truck.

WANTE[illegible]

5000 Brick and Tile Manufacturers

Who are willing to be shown how to save time, labor and fuel (some makers say 50 per cent) by using **Hooks Improved Up and Down Draft Kiln.** We also have a **"Grateless Furnace Dry Kiln"** that is cheap and economical to built and operate.

Fire Brick and Kiln Iron at the very lowest price. Just fill out, detach and mail this—

COUPON

OHIO KILN CO., VIGO, O.
Without obligation or expense
"Show Me."

Name ....

Town ....

State ....

apartments in that city on June 26. Mr. Emmons was seventy-four years old and was a Civil War veteran.

W. T. Sherwood, owner of the big brick plant at Payette, Idaho, recently made a short business trip to Emmett, Idaho, and while there secured orders for the delivery of over a million brick during the summer.

V. H. Cartwright has severed his connections with the General Western Material Company of Waterloo, Ia., to accept the position of ceramic engineer with the Murphysboro (Ill.) Paving Brick Company.

Miss Ethel Pontz, the daughter of Jacob Pontz, a prominent brickmaker of Lancaster, Pa., was recently married to Captain Frank C. McCown, previous to his being called to the Mexican border with his militia company.

Oscar H. E. Ochs, a member of the Ochs-Frey Brick Company, Allentown, Pa., was married to Miss Alice E. Schantz of Allentown recently. Mr. Ochs is one of the best known men in the building material trade at Allentown, being the son of the late Tilghman Ochs, a pioneer brick manufacturer of the Lehigh Valley.

J. R. Marker, commissioner for the Ohio Paving Brick Manufacturers' Association, is having a busy time with his publicity campaign to educate people in the use of brick as a paving material. He is also devoting considerable attention to solving engineering problems for county, municipal or township officials, where paving matters are involved.

Edward Brockway, owner of the Brockway (N. Y.) Brick Company, died suddenly on July 4 from an attack of heart failure. Mr. Brockway, who was seventy-eight years old, is one of the pioneer brickmakers of the Hudson river district. In 1863 he built, at Haverstraw, what still remains as one of the largest brickmaking yards along the river, and in 1886 he purchased 38 acres of land at Fishkill-on-Hudson and built what is today one of the largest plants on the east side of the Hudson. He also built a yard at Dutchess Junction in 1898.

William Atkinson recently celebrated the sixty-sixth anniversary of his residence in Rock Island, Ill., where he has been engaged in the manufacture of brick since 1872. His father built the plant at that point in 1850, following his resignation from a company in Canada. Mr. Atkinson, during the period spent in making brick in Rock Island, estimates that he has turned out approximately 60,000,000. He also supervised the laying of the first brick highway in that city and was actively connected with the installation of the first vitrified clay pipe sewer improvement.

Arizona

A number of improvements have recently been completed on the plant of the Tucson (Ariz.) Pressed Brick Company, according to a statement made by Quintus Monier, president of the company. This concern is at present supplying 100,000 face-brick for the new city hall being built at that point.

California

A bond issue amounting to $500,000 for sewer improvements has been provided for at Fresno, Cal., and is to be advertised for sale shortly.

The Independent Pressed Brick Company of Modesto, Cal., is enjoying an active season. One of its recent contracts for high-class brick, is that covering the new garage at H and Eleventh streets.

The plant of the Simons Brick Company located at Inglewood, Cal., was recently placed in operation, turning out 38,500 soft-mud brick per day. Only one of the two machines are being operated, the other being held idle until the demand makes its operation necessary.

Colorado

Having recently been overhauled and re-equipped with modern brickmaking machinery by William Strohmer of Pueblo, Colo., the Durango (Colo.) Brick Company is now working full force trying to fill an order for one million brick to be used in the construction of a new high school building at that point. This, when coupled with the other large orders that have been received by the company since it started operations, will make it necessary to manufacture two million brick during the year.

Idaho

Having received a very satisfactory report of an analysis made upon a clay from a deposit found at Joel, Idaho, the Moscow (Idaho) Fire Brick and Clay Product Company is contemplating the erection of a plant to manufacture clay products. The directors have already issued 25,000 shares of the capital stock for the purpose of opening the clay deposit and erecting a plant. Offices will be maintained at Moscow, in charge of John Nisbet, secretary of the concern, who is handling the subscription work.

Work on the construction of a brickmaking plant to be built at Emmett, Idaho, is to be started during the present month, according to the plans of F. E. Graham, who has purchased a tract of land at that point upon which to build the plant. Mr. Graham is at present purchasing the necessary equipment for the new enterprise. Sufficient orders are now on hand, it is claimed, to keep the company busy thruout the summer, a call for over a million brick having already been received. Besides brick, the company will manufacture drain-tile.

Illinois

Work on the new $125,000 plant being built at Kankakee, Ill., by the Kankakee Brick and Tile Company is rapidly progressing. The contract has already been placed for the steel to be used in the structure.

The Shale City Brick Company of Aledo, Ill., has installed a sixty-foot shale planer at its plant at a cost of $5,000. It is expected that the machine will take the place of twenty men, and pay for itself within a year and a half.

A large frame barn owned by the Kankakee (Ill.) Brick and Tile Company was recently destroyed by a fire of an unknown origin, causing a loss of $1,500. In all probability the building that will replace the "built to burn" wooden structure will be of fire-safe hollow-tile manufactured by the company.

Indiana

About fifty of the "live wire" wholesalers and jobbers of groceries and other products in Indianapolis, on their second "gasoline gallop" thru the nearby towns recently shook hands and exchanged greetings with the business men of Greencastle, Linton, Worthington, Sullivan, Terre Haute and Brazil. At the latter place members of the party were taken thru the various clay plants which, according to the visitors' remarks, have orders booked that will keep them busy for the remainder of the year.

Grips the Pulley and Pulls Evenly

Hettrick Canvas
BELTING

Has made such a substantial reputation for itself on clay plants simply because the rugged quality is built and stitched into it before it leaves our factory.

We do not have to make excuses before or after the sale of Hettrick Belts. They look good—and they act good, under even the hardest and most severe conditions.

HETTRICK BROS. CO.
TOLEDO, OHIO

You won't have to worry about competition if you treat your clay with

R. H. Precipitated
Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

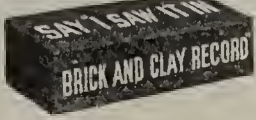
You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

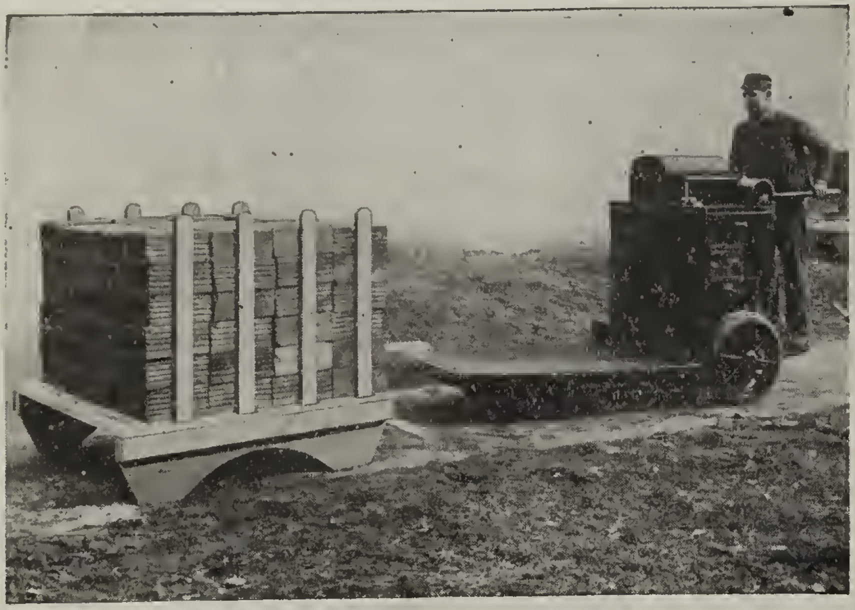
But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher
Chemical Company
100 William Street New York

Chicago, Ill. Kansas City, Mo. East Liverpool, O. Philadelphia, Pa. New Orleans, La. St Louis, Mo. Boston, Mass.





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to make the "WHEELER" available
for other work?
He is no longer needed for this simple job.

Elwell-Parker SELF-LOADING Electric Trucks

with one man, will successfully do the work of six men in most plants, handling clay products between presses, driers, kilns and yards or cars.

It will pay you to investigate—it has others.

THE ELWELL-PARKER ELECTRIC CO.
Main Office and Works CLEVELAND, OHIO

"Nothing Succeeds Like Success"

THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Have been placed in
EIGHT MORE
CERAMIC PLANTS
Since the Cleveland convention

Are you Interested?

Let Us Tell You About It

THWING INSTRUMENT COMPANY
437 N. FIFTH STREET
PHILADELPHIA, PA.

The report published in the July 4 issue relative to the organization of the Natural Products Company at Shoals, Ind., has been confirmed, that company since incorporating with a capital stock of $150,000 to manufacture paving and building brick, sewer-pipe, roofing tile and terra cotta. The company owns 1,200 acres of land at the proposed site and also owns about 9,000,000 tons of coal. J. Leb Watkins, mayor of Newcastle, Ind., is working in the interests of the company of which Edward Barrett of Indianapolis, state geologist, is president. Adolph Levy, August M. Kuhn, George Weidely and Doctor Oliver Hahn, all of Indianapolis, are among the incorporators.

Iowa

One of Iowa's most progressive clay plants, the Rockford Brick and Tile Company, is enjoying considerable prosperity at the present time. One of the large orders recently received calls for the shipment of sixty-eight carloads of drain-tile.

Kentucky

The P. Bannon Company, Louisville, Ky., has begun making deliveries of tile to the Speed building, on which the excavation work is finished, and, according to A. P. McDonald, salesmanager, is finding the demand for brick and tile generally satisfactory. All three plants of the company are operating on a capacity basis and the outlook is for a good late summer and fall.

T. Bishop, secretary of the Southern Brick and Tile Company, Louisville, Ky., reports that the plant is running full time on orders booked or on stock, while numerous requests for prices are being received daily by the company. Building promises to open up on a wider scale later in the summer. This is normally the dull season for the drain-tile business and the company does not look for much improvement until the crops are harvested. The farmers have neither the time nor the disposition to give much attention to drainage work at this period of the year.

The Coral Ridge Clay Products Company, Louisville, Ky., is concentrating at this time on booked orders for brick and tile which piled up during the early spring. The hollow-brick which this company manufactures has met with a ready and large sale. For the present the company is not turning out any of the several lines of face-brick which were put on the market last summer, but will wait some time before pushing them. There have been a number of Louisville houses built with these brick, the results attracting favorable attention from prospective builders.

The plant of the Barbourville (Ky.) Brick and Tile Company, located in a thriving eastern Kentucky city, has a record that few can equal. It was organized in 1905 by S. B. Dishman, B. F. Dishman, W. M. Dishman and J. A. McDermott and has been continually in operation. Not for a single day since the wheels began to turn in this plant has work been suspended, and now the company is employing sixty men, with a capacity of 40,000 brick daily. Brick used in construction of six new high schools in eastern Kentucky cities were made at this plant, and several of the new eastern Kentucky colleges have used the Barbourville product brick in their buildings.

In prospect for future business for the clay products manufacturer in Louisville is the Baptist Young Women's Union Training School, which is to go up at Preston street and Broadway at a cost of $150,000. Capt. Brinton B. Davis, Inter-Southern Building, is the architect. Still an-

other good job that is reaching a definite form provides for the reconstruction of the present Pendennis Club, or the building of a new home on the site of the present club. This has been made necessary by a merger of the Pendennis and the Tavern clubs, the two largest in the city. The Standard Club is proposing to replace its country clubhouse, burned some time ago, with a fireproof structure.

Louisville's retailers report that business at this time is, generally speaking, going to small orders, altho there is a large number of these. The next big job that will develop is the Louisville Auditorium, which will cost about $250,000. D. X. Murphy and Brother are the architects, the choice having been recently made. Brick and terra cotta salesmen are watching closely to see what will be chosen as the facing material for this building. This will be an inside building, faced only on the facade, in all probability. The project has not as yet progressed as far as the form which the building will take. Possibility of the interior calling for a goodly supply of face-brick, tile or terra cotta is also interesting the trade.

Brick paving is continuing to receive approval of a large number of the smaller Kentucky cities. Versailles is letting contracts for paving 4,000 square yards, Maysville for about $15,000 in additional brick paving, Frankfort for a considerable amount of new pavement, while Shelbyville, which was committed to a paving program, has reconsidered and will postpone this work while it does some sewer construction first. In Maysville, where Schoolfield and Jones are contractors for the construction of brick streets in the business district, the work has been held up by the inability to secure deliveries of the brick specified in the contract. At the consent of the city authorities, however, the contractors are substituting another brick, of similar character, and the work will now go forward rapidly.

J. H. Bell, salesmanager for the Louisville (Ky.) Fire Brick Company, reports that business has developed so rapidly in the past few months it has been necessary for the company to refuse some orders, while both the plant at Louisville and that at Grahn, in Carter county, are being operated to as high a capacity as available labor will permit. The proposed improvements at the Grahn plant will be more extensive than at first planned and will add about 15,000 brick daily to the output, bringing the daily capacity to 60,000. Contracts for the new addition have been let by the company, which will mean that the plant can be operated on the extended schedule by the first of October. The plans provide for additional boiler capacity, a new blower, additional dry pans, as well as a new brick machine and an addition to the drier. Getting sufficient labor just now is the most difficult problem of the company.

Michigan

The Grande Brick Company of Grand Rapids, Mich., thru its manager, H. O. Joseph, reports business as being unusually active. This company recently received orders for a large quantity of brick to be used in building an addition to the plant of the American Box Board Company, and a warehouse for the Imperial Furniture Company.

Minnesota

The plant of the Belt Line Brick Works, a sand-lime brick company of Minneapolis, Minn., is being

BUFFALO
450 Rooms 450 Baths

DETROIT
1000 Rooms 1000 Baths

CLEVELAND
1000 Rooms 1000 Baths

As to Open-Mindedness

These hotels are operated for their guests, rather than along the lines of the conventions of hotel-keeping.

In every guest-room of every Hotel Statler is a printed request for criticism and suggestions for the betterment of Hotels Statler service. And right with it is a pad of slips, to make the comments come easy.

Verbal comments are welcomed, too. If complaints, they are adjusted immediately and in a way *satisfactory to you.*

Every room has private bath, circulating ice-water, and many other unusual conveniences. Morning paper delivered free to all guest-rooms. You get more for your money—unquestionably—at any Hotel Statler.

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Hotel Statler, St. Louis, now building
Rates from $1.50 Per Day

Get Your Die Castings From Us

Grey Iron and Bronze Foundries—Pattern Shops. Large capacity—Modern daylight shops—Castings from one pound to ten tons.

We produce better castings, quicker and cheaper. Let us prove how much better our castings are—Why they are made of Virgin Pig Iron (Superior Ore) instead of Scrap Iron.

Original builders Waste Heat Fans, Friction Hoists, Pumps, Steam Hoists and Radial Silo Block Cutters.

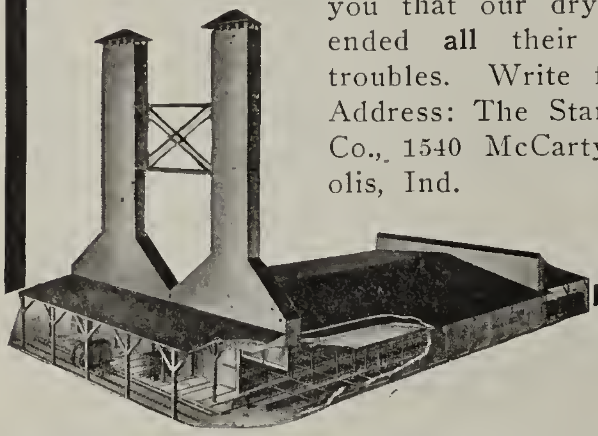
Established 1869—still going strong.

Crawford & McCrimmon Company
Brazil, Indiana

The Standard Drier

Now and for 30 years the leading exponent of the Natural Draft Steam Drying System for brick and all clay products.

Our catalog is yours for the asking. It should be read by every brick manufacturer who has drying troubles of any kind. Standard Drier users will tell you that our drying system has ended **all** their former drying troubles. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



There is a man—

a manufacturer of fireclay products; he has used Canton Kiln Grates for four years.

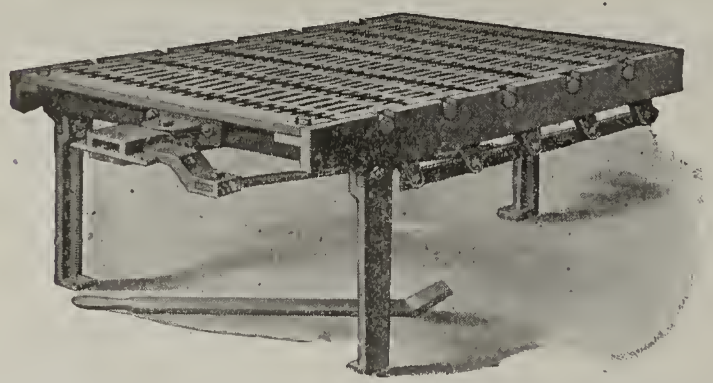
This man saved 30% of his burning costs each year in the first three years.

Today, in the fourth year, he claims and is accomplishing a saving of—40%.

Are you neglecting an opportunity? In all fairness to yourself, to your trust, to your company—is it right for you to any longer neglect an investigation of Canton Kiln Grates?

We have dozens of sets in kilns. We will furnish you a set on a trial basis.

Write that letter to us—now.



The Canton Grate Co.
1706 Woodland Ave.
CANTON OHIO

enlarged to produce 75,000 brick per day, according to a recent statement made by John Zellie, superintendent.

Missouri

The Enterprise Brick Works, St. Louis, Mo., has just installed a new revolving screen of its own design, which is said to be giving a great deal of satisfaction.

The A. P. Green Fire Brick Company of Mexico, Mo., will open a Chicago office in the Continental and Commercial National Bank building very shortly with H. E. Risher as district salesmanager. Up to July 1 Mr. Risher was district salesmanager for the Evens-Howard Fire Brick Company of St. Louis, maintaining his office at 29 So. La Salle street, Chicago.

The capacity of the Fulton (Mo.) Fire Brick Company is to be greatly increased within the next few weeks, if the plans for extensive improvements now under consideration by the company materialize. This company, headed by Luther Nickell, has enjoyed considerable prosperity during the past year, having received its full quota of large orders now being placed for refractory materials by the steel and iron industries.

The Evens-Howard Fire Brick Company, St. Louis, Mo., reports business better than normal, according to G. W. Jones, secretary. Not much of the company's product is being marketed in the city, but shipments to other points are keeping up as well as those in the past six months, with indications of no let-up during the balance of the year. The company has done considerable repair work on the kilns at its County plant, and has also added two new kilns to the battery. The biggest demand for fire-brick is coming from the zinc smelters and the steel works, altho inquiries from the latter source do not total more than the usual run.

W. P. Grath, president of the Illinois Supply and Construction Company, whose office is in the Wright building, St. Louis, Mo., with the plant at Newburn, Ill., turning out dry-press brick, does not sound a very cheerful note with regard to the local building situation. He stated that only about thirty-five per cent. of the regular construction work is being done, while prospects for the future are not very encouraging. A number of brick manufacturers, including himself, visited ten different plants two weeks ago and found only one of them operating. The Newburn plant is shipping some material to various points, but not in satisfactory quantities.

There are two kinds of demand with the brick manufacturers of St. Louis, Mo., at the present time—good and bad—the former applying to fire-brick and the latter to building brick. Manufacturers of the former product are sharing in the general prosperity of the fire-brick industry, but an unusually dull building season has brought woe unto the makers of the material which goes into residences and business structures. With the exception of one section four blocks long by two blocks wide, and a few scattered apartment houses in the West End of town—some of which, by the way, are of considerable size—there is little or no building going on. The brick men attribute this condition to the high prices of other materials, namely, cement, lime, and steel.

Business has been quiet in the vicinity of St. Louis, Mo., for the Alton Brick Company, which has one of the most modern plants in the country at Alton, Ill., and in addition a new plant at Maryland Heights, near St. Louis. The Alton works is turning out paving-brick, while the Maryland Heights plant is making rough-textured face-brick and backing up tile. At the latter plant the company recently took out three pressed-brick machines and put in stiff-mud machines. This plant uses Keokuk power. Considerable diffi-

culty is being experienced in getting a sufficient number of workmen. The concern recently furnished brick for the Georgian Court apartment house on Kingshighway, just east of DeBolivar, which took 100,000 face-brick; the Belleville (Ill.) high school, where 200,000 brick were used, and several apartment buildings in the West End. R. L. Mernagh is the St. Louis representative of the Alton Brick Company.

The McEwing and Thomas Clay Products Company, in the Fullerton building, St. Louis, is receiving more orders for face-brick, principally from points outside the city, than it can conveniently take care of, and its plants in Illinois, Indiana, Ohio and Missouri are working full time, turning out twice the amount of material manufactured last year, which was considered a good season. There is also a good demand for hollow building tile. The brick made by this company are of shale, and in various textures. In fact, the concern uses as a slogan "We make showrooms out of streets," backing it up by urging builders within the same section to use different styles and faces so as to produce a variety of structures, thereby getting away from a monotonous sameness. "While this is a brick manufacturing concern," said one of its officials, "we occasionally suggest stucco on hollow-tile to lend contrast in new sections."

F. C. Achemeyer, salesmanager of the Hydraulic-Press Brick Company, in the Central National Bank building, St. Louis, reports a satisfactory amount of business from out of town, but with little doing in the city. He assigns as a reason for the slump, which began to show evidence late in the spring, the difficulty in securing other building materials, stating that there are plenty of people who are willing to pay almost any price to get building supplies, but are unable to obtain them. Business generally is better than it was last year at this time. The Hydraulic concern furnished the face-brick for the Missouri Athletic Association building, recently completed, one of the finest structures of its kind in the world, requiring 150,000 kiln-run rough-textured face-brick for the outside facing and 500,000 commons. It also supplied the brick for the Pevely Dairy Company's new building at Grand and Chouteau avenues, the interior being of enamel brick for the first and second floors and glazed brick for the third floors. Red vitrified brick were used on the exterior, requiring 100,000. The other quantities included 40,000 Norman enamel and 160,000 brown glazed brick. The brick work on the building has just been completed.

Montana

Recent tests made upon a clay deposit found at Baker, Mont., have shown it to be unusually well suited to the manufacture of burned clay products. Messrs. Wieir and Wintermute, the interested parties, are about to form a company to develope the industry.

Nebraska

Omaha (Neb.) business men are petitioning the street railway company to replace the old stones between its tracks along Twenty-second street with vitrified brick. This is one of the chief thorofares of the city and the replacement of the stone paving with brick would be a decided improvement.

Nevada

The Mackay School of Mines, Reno, Nev., is at present conducting tests upon a pink and white clay discovered by representatives of the engineering department while making some underground water investigations. The clay is said to be exceedingly plastic and should the tests prove it to be suitable for moulding or art pur-

You don't have to use force to open or close the

Jenkins Bros. Valves

Users of common type metal-seated valves frequently have to resort to the use of wrench or bar to obtain tight closure. Such exertion is unnecessary if you equip with Jenkins Bros. Valves. Just shut them down easy. The flexibility of the Jenkins Disc secures perfect seat contact, and enables the user to maintain tightness without any trouble.

Any dealer can supply. All genuine have Diamond Trade-Mark as shown in the cut. Write for Catalogue B20.

Jenkins Bros.

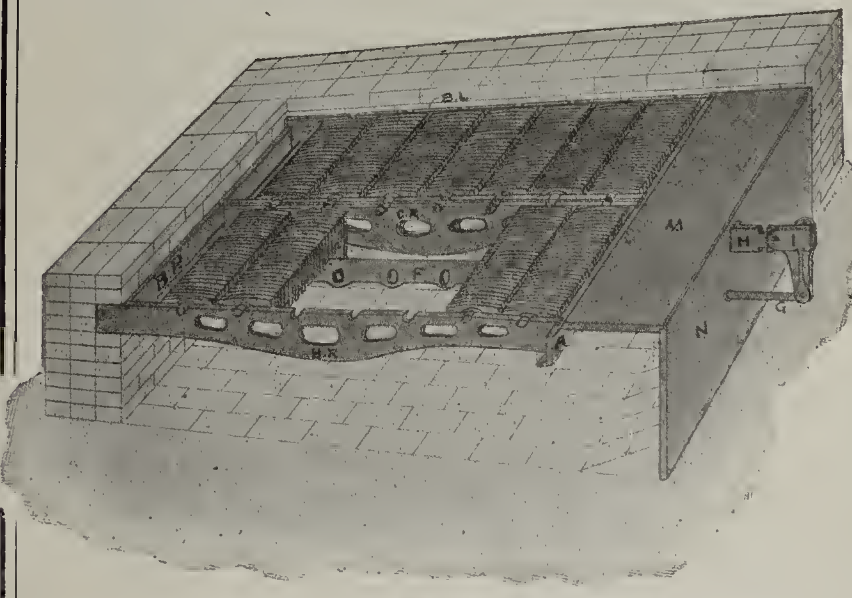
80 White Street, New York. 524 Atlantic Avenue, Boston
133 N. 7th Street, Philadelphia. 300 W Lake Street, Chicago.
Jenkins Bros. Limited, Montreal, Canada, and London, E C England.

Those brick companies that have installed the

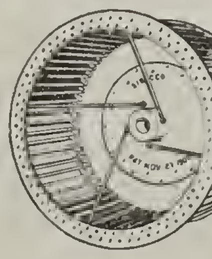
CYCLONE BOILER GRATES

never have to worry about their power plants because they know they are getting more heat out of less fuel than they have ever been able to get in the past.

We had to prove it to them first, however, just the same as we ask the opportunity to prove it to you—by installing our grates on 90 days' trial.



CYCLONE GRATE BAR CO.
BUFFALO, N. Y.



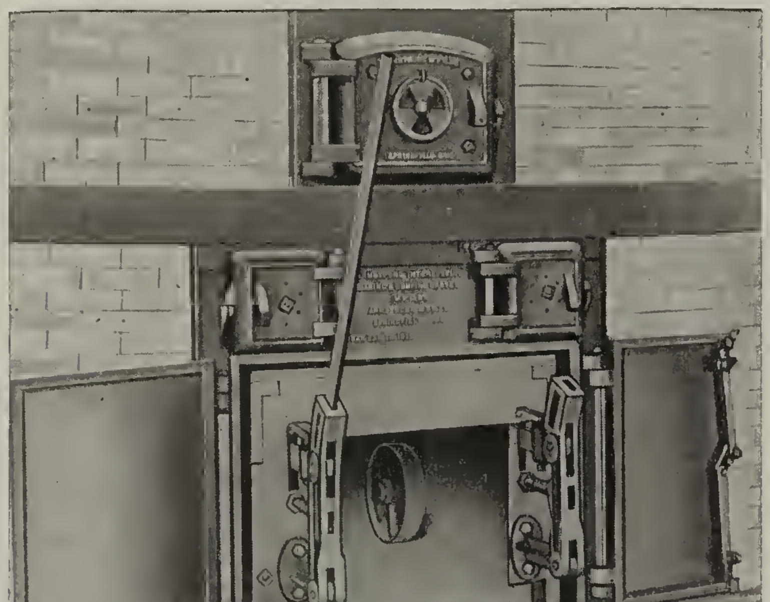
Sirocco Fans Are Not Confined to Brick Drying

BECAUSE of the supremacy of the Sirocco Waste Heat Drying Systems, and the emphasis our advertising has put on it, many manufacturers had the idea that Waste Heat Drying Systems are the only pieces of Clay Product apparatus to which the name Sirocco is applied, and that brick is the only clay product which manufacturers of Sirocco Fans play a part.

Sirocco Fans can be used just as advantageously in the drying of pottery, sewer pipes or any other clay product. Its economical qualities and usefulness also extends to supplying forced or induced draft for your kilns, thru which you can materially cut down your coal and repair bills and at the same time be absolutely independent of weather conditions.

Clay Products Bulletin No. 13-A will interest you. You should send for it now, while it is on your mind.

American Blower Company
Detroit, Michigan
Branches Everywhere



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

poses, it will be used in the clay modeling department of the school.

New York

The Long Island (N. Y.) Brick Company has been incorporated with a capital stock of $350,000 to manufacture and deal in all kinds of clay products. Those interested in the new company are H. O. Coughlan, L. H. Gunther and Joseph F. Curtin, all of New York City.

North Carolina

A charter has been granted the Buffalo Clay Company to incorporate at Statesville, N. C., with a capital stock of $50,000. Of this amount $10,000 has already been subscribed. The company will manufacture brick, drain-tile and hollow-tile. The interested parties are E. R. Rankin, E. G. Gaither, F. F. Steele, and others.

Ohio

The Willis Brick Company has been incorporated at Cincinnati, Ohio, with a capital stock of $5,000 by J. Willis.

The Diamond Brick Company, operated at Oak Hill, Ohio, by J. Jones, is about to construct an additional brickmaking plant at East Fultonham, Ohio.

The Metropolitan Paving Brick Company of Canton, Ohio, received another large contract recently when the city council of Kalamazoo, Mich., voted to purchase 600,000 brick from that company at $21.50 per thousand delivered.

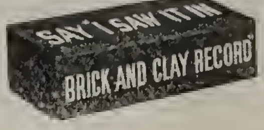
County commissioners, the county engineer and several contractors made the trip from Geneva, Ohio, to Paris, Ill., recently to ascertain the value of the monolithic type of brick pavement which has found great popularity in Illinois. As yet no definite report relative to the investigators' views on the value of that type of pavement has been made.

The mobilization of the Ohio National Guard is affecting the labor situation among clay products manufacturers of the Buckeye State. The order has taken away quite a few laborers and skilled workmen and it is a difficult matter to replace them. Several clayworking concerns have announced that they will pay their men half time and keep their positions open for them during their service on the Mexican border.

J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio, reports labor conditions at the plants of the company as growing very bad. He predicts that a large number of the face-brick plants will be compelled to close down soon if there is not a betterment in conditions. The shortage of supply is principally in common labor, altho there is also a scarcity of skilled workmen.

The work of reorganizing the Shawnee Flash Brick Company, which has a large plant at Shawnee, Ohio, is progressing slowly. The receiver, S. D. Doney, has not as yet deeded the property over to the committee of bondholders that purchased the assets at the receiver's sale more than a month ago. But the bondholders are hopeful that the reorganization will be effected and the plant placed in operation in the near future.

The Fultonham Texture Brick Company has been organized and will take over the property of the Kirschner Brick Company at East Fultonham, Ohio. J. J. Jones of Oak Hill, Ohio, is president of the new company; E. E. Eubanks of Jackson, vice-president; D. S. Parry, Oak Hill, secretary and treasurer, and Carl C. Walters,



formerly sales manager of the Hocking Valley Products Company, is general manager.

The G. F. Brunt Tile Company, located at Chaseland, near Columbus, Ohio, is gradually increasing its equipment to keep up with the present demand for its products. The concern is now confining its efforts to the manufacture of ceramic floor tile and porcelain for electrical work. One of the chief difficulties, according to the general manager, is the inability of getting sufficient materials, especially chemicals. There is also a shortage of labor, but this is not serious at this time. Machinists are particularly hard to find.

Oklahoma

The United Brick and Tile Company is the name of a newly incorporated concern at Tulsa, Okla., having a capital stock of $100,000. John A. Richards, W. D. Abbott, and F. A. Peek are the incorporators of the company.

Oregon

The Dallas (Ore.) Brick and Tile Company has been dissolved.

Pennsylvania

The Bessemer Brick Company has been incorporated at Monongahela City, Pa., with a capital stock of $10,000 for the purpose of manufacturing brick. J. A. Spence, of that point, is treasurer of the company.

Joseph Hall was recently appointed superintendent of the Mountville (Pa.) Brick Company's plant. The plant has now a capacity of 35,000 brick per day, a large increase having been realized thru the construction of a new kiln with a capacity of 80,000 brick.

As was rumored in the June 20 issue, the Glen-Gery Brick and Cement Company, owning the brick plant at Shoemakersville, Pa., has purchased the Wyomissing Brick Company's plant for $30,000 and assumes the mortgage of $89,000, making the price for the property $119,000. The new owners have leased the recently acquired property to the Glen-Gery Brick Company which will operate the plant in connection with the large plant at Shoemakersville. This gives the company a factory on the Reading Railway and another on the Pennsylvania. The Wyomissing plant, which has been idle for eight years, will resume operations immediately, giving employment to one hundred men. The output will be close to 100,000 brick daily. The plant has been remodeled, a steam shovel and other modern machinery having been installed. A. A. Gery is president and W. H. Rehr is treasurer of the Glen-Gery Brick Company.

WHAT THEY SAY *about* PRICE CUTTING

(*Continued from Page* 141)

business foundation that is fundamentally correct and sound, when this is understood and brought into practice.

Think it over Mr. Brickmaker and follow the path blazed by others. The readjustment necessitates a

Bucyrus-Westinghouse Electric Dragline Excavator at Plant of Cherokee Brick Co., Macon, Ga.

Westinghouse Electric-Driven Shovels

do everything steam shovels can do, and

Do It Better

Why bother with coal, service pipes, water supply and other inconveniences common to all steam-driven shovels, when you can do away with them by using electric-driven shovels?

Westinghouse Electric-Driven Shovels are always ready for work at a minute's notice; require no licensed engineer; are most economical to maintain and operate; have no standby losses.

The Westinghouse Motor and Control equipment is specially designed for the service, and is so simple and reliable that anyone of ordinary intelligence quickly becomes an expert operator.

Ask our nearest office to send you Descriptive Leaflet No. 3710; it gives some interesting particulars.

Westinghouse Electric & Mfg. Co.

East Pittsburgh, Pa.

Sales Offices in All Large American Cities

271

More Money

There are just three ways for **YOU** to make more money out of your plant.

Ask more money for the ware you are now producing? — competition won't let you;

or

Make your ware more economically.

Make better ware and get the **Quality Price.**

Hook Down Draft Kilns will do **both** for you. Install Hook Kilns and get the highest possible percentage of first quality ware with less coal and in less time than with your present kilns.

Many clayworkers in different parts of the United States are already obtaining these results. So can you.

Don't wait until you build new kilns. Your first year's saving will pay the cost of changing your old kilns to this system.

We sell on a "Money-Back Guarantee". We gain only when you gain.

Why not investigate this proposition NOW?

We furnish Kiln Bands and Grate Bars for all types of Kilns.

Hook Patent Kiln Co.
Vigo, Ohio
Canadian Office:
250 Dufferin Street, Toronto, Ontario

radical change, but the difficulties are not insurmountable.

So far as the dealer whose co-operation is worth having, you can count on his universal support in any effort you make to change the chaotic condition that now exists to orderly business.

LET'S GET TOGETHER

That co-operation is absolutely essential if the open price plan be successful, is the keynote of a letter from D. H. Applegate, Jr., manager of the Crescent Brick Company, Red Bank, N. J., written to "Brick and Clay Record" under date of July 1. The Crescent Brick Company is a *manufacturer*. Mr. Applegate's letter follows:

I have read with great interest Mr. Fiske's article in the June 20 issue of "Brick and Clay Record" on "Price Cutting" and am heartily in accord with what he says. He is an authority, both on manufacturing and selling, and his plan, as outlined, is practical from both standpoints. It merits the support of his fellow craftsmen and should receive it, for it promises relief from the intolerable conditions now existing by returning control of the face-brick business to those on whom its responsibility rests.

In order to make the working of this plan effective I would think that not less than two-thirds of the face-brick tonnage entering any given market should cooperate, but I realize that it will take some faith and courage on the part of manufacturers to embark upon a course so new, and it may be some time before even a majority of them will endorse the project. The fact that Mr. Fiske's endorsement follows a year's trial, ought to be encouragement enough for the most timid, and the fact that face-brick prices have been dropping, while the prices of nearly all other commodities, including those used in manufacturing brick, have risen, ought to be incentive enough to drive the most apathetic to action.

PUBLICITY AND COST ACCOUNTING IMPORTANT

There are two other factors which I believe should be taken cognizance of in launching this project, i. e., concerted "boosting" of face-brick to relieve congestion and oversupply, and a standard method of cost finding to enable a manufacturer to know what he should sell his product for to obtain a profit. Judging by the prices at which some face-brick are sold, their manufacturers must have delved into the magic arts and learned the secret of Aladdin's lamp. A cost expert supported by all the face-brick producers jointly and serving each individually, might be a good thing. He could certainly impart a lot of information on points which are now seldom thought of.

As to the main issue, however, let's get together. Mr. Fiske has worked out a good plan; let us now put the plan to work.

ADVOCATES ORGANIZATION

Another *dealer* has something interesting to say. This time it is E. P. Elzey of Parkersburg, W. Va., who writes to the American Face Brick Association under date of June 21, as follows:

Your favor of the 19th instant is at hand, and I am glad to learn of the very general interest aroused by Mr. Fiske's paper, and trust that from this beginning definite, helpful results may speedily take shape. The whole proposition is a large one and of so many tangents that it is hardly likely that one man will be able to offer a complete remedy, yet the whole situation can be satisfactorily controlled by the manufacturers when they are in earnest and really reach the point of being willing to make a profit in the face-brick business. There is no question that dealers and the public will pay the price manufacturers may find proper to put on their brick, and control of the whole matter is an easy proposition under definite organization.

OTHER LINES EXAMPLE OF WHAT CAN BE DONE

If there is any opposition to definite organization of face-brick manufacturers and dealers, we would refer such opposed to the very helpful and satisfactory results coming to manufacturers and dealers in other building commodities who are organized and who give heed to the direction of their state and national organizations. Especially do we refer to encaustic tile manufacturers and dealers, structural steel manufacturers and dealers, cement manufacturers and dealers, lumber manufacturers and dealers, and in passing and while referring to organizations for mutual benefit, face-brick manufacturers and dealers must not overlook the very effective organizations of contractors and builders, as well as of bricklayers, both of whom are organized so thoroly that even the smaller towns are practically entirely controlled by their effective operation. These facts seem to make it absolutely neeessary that face-brick manufacturers and dealers come to such understanding as will make clear their status and with definite rules governing the face-brick business.

BELIEVES IN THORO ORGANIZATION

Without having given the matter the thought that is necessary for effecting an adequate organization that would be able to relieve a majority concerned, we would suggest in connection with your request for ideas that you have in the American Face Brick Association the nucleus of the organization necessary, to which it would be necessary, it seems to us, to have state or territorial organizations of definite boundaries that would be able to take care of district or local conditions all in accord and governed by the construction and by-laws of the national and state or district organizations.

Organization, down to state or district, and even to county or city organizations, is necessary to secure full results and such organization is easy to effect when properly gone after, and with full records and open books in each local organization, as well as in the state and national organizations, the spirit as exists today in the face-brick business soon disappears and there comes in its place an understanding and confidence that make co-operation an easy matter, and any result desired can be reached. With such organization, details can be worked out to the point where every order of brick sold with price and terms may become a matter of general record.

SOME OF THE THINGS TO BE DONE

Types of brick should be standardized as is lumber and other commodities and this can be easily accom-

Gandy
Wears Longer and Costs Less

"HAVE used it for years, and to my sorrow and expense was once induced to purchase one of the 'just as good but cheaper' belts, with the result that this imitation belt only lasted me 108 days as against 487 days' service obtained from the genuine Gandy."

The letter tells of increased service from Gandy Stitched Cotton Duck Belting.

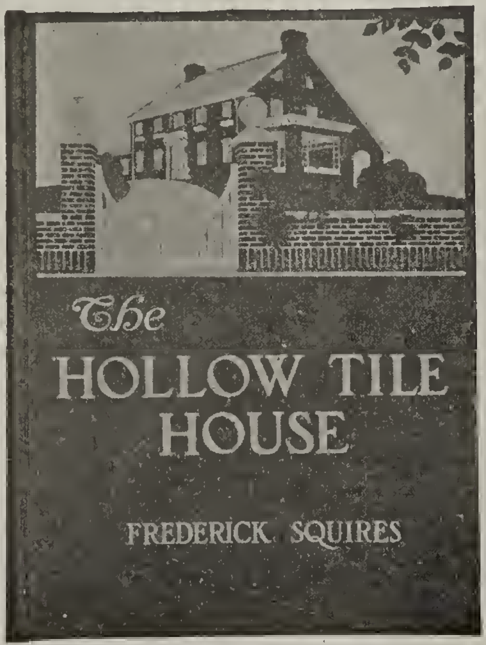
In addition to the extra wear it gives, you should use Gandy Belting for the further reason that it is cheaper than other types of belting—its cost being about one-third that of leather and about 25% cheaper than rubber.

It is proof against oil, water, dust, heat, gas or steam. It is guaranted as to material, workmanship, uniformity and service, and is backed by 39 years of successful manufacturing experience and the thousands of belts now in satisfactory use.

If you are in need of a belt, any size, for any purpose, write us for the prices and samples.

Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

If you make, sell or use Burned Clay Fireproofing



You Need This Book

THE HOLLOW TILE HOUSE

by Frederick Squires

is brim full of valuable information and good reading matter on this new field of hollow tile in residential construction, its history, how the tile is laid up, cost data and a host of other interesting subjects, all of which is skilfully woven by the author into a very fascinating story. A large number of illustrations give the reader an idea of the architectural beauties and possibilities of the hollow tile house. It will be time well invested to read this book.

ORDER A COPY NOW.

PRICE $2.50

Book Department

Brick and Clay Record

CHICAGO

plished under approximately six classifications in first, duplicating in seconds, details of which should be easily worked out.

Manufacturers should be able to make a standard price for brick at plant to which freight expense to shipping point would be added.

Price quoted by manufacturers to builders, architects or owners to be standard, published prices, and available to all. (The pernicious custom of manufacturers quoting architects and builders special prices should be stopped. This is the source of practically all price cutting and does not create a market for a single additional brick.)

Brick should be sold and shipped only on signed orders showing grade and price, subject to inspection on cars destination and not at operation, and questions of dispute or controversy referred to proper organization authority for adjustment and settlement as do lumber manufacturers and dealers.

Prices should be standardized in our opinion and based on kiln run shades and grades averaging say eighty-five per cent. A grade and fifteen per cent. B grade. With this as a basis:

Kiln run shades selected to first would advance over base an agreed amount.

Selection to one shade advance another agreed amount. Selection to special unusual shade advance a further agreed amount.

Seconds standardized likewise with agreed reductions from base in accord with selection.

With such established basis to govern grading and pricing of brick, the manufacturer, dealer, architect, contractor and user generally would so soon know the advanced cost of any brick over base that no questions would ever arise in this connection, and so standardized, there would be no opportunity for the many discussions and contentions that now arise as to grade or quality offered and delivered.

BELIEVES DEALERS WILL DO THEIR SHARE

We would be very much pleased to see an effective organization of manufacturers and dealers in face-brick and are certain that the dealers will more than do their full part in bringing about results that will overcome conditions of which the manufacturers now so generally complain, and to do this we are certain, as intimated in our first communication, that the manufacturers will in many cases have to revise their quoting and selling methods. The quoting of cut price and the "factory to user" argument have both had little if any effect in our territory. We are local dealers, well known, make our own prices which are posted in our office and are lived up to. We make a profit on the brick we sell and have sold on job after job where manufacturers' representatives have tried the price cutting route without any effect whatever, and where they do get thru on this route, the manufacturer feels aggrieved that he is forced to accept business at such a price. Dealers will pay manufacturers the price they may set on their brick and only ask in return that the manufacturers stand by their price.

* * *

The Kutztown (Pa.) Brick Manufacturing Company, owned by Rhode and Boyer, is operating to capacity in an effort to fill the orders that have been received during the past few weeks.

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Drying Clays in Sixty Minutes*

(*Continued from July 4 Issue*)

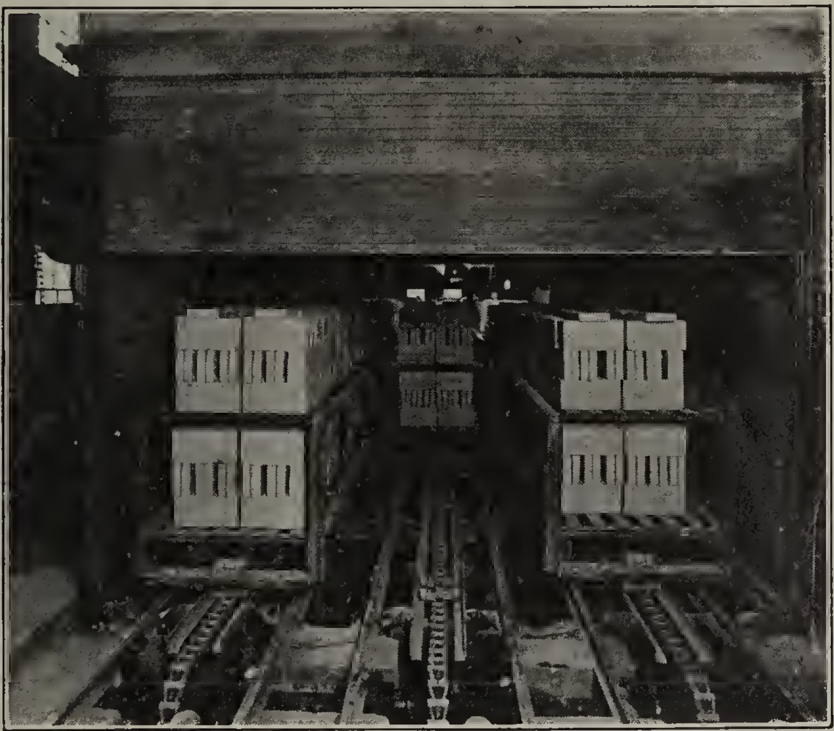
The Proctor drier can be operated either as a Periodic drier, or on the Progressive principle.

With a three compartment Proctor machine, operated as a Progressive drier, the green ware enters the drier on cars in the usual way. The first compartment, or "humidity zone" is simply a chamber in which the ware is brought to a comparatively high temperature, without any great amount of evaporation taking place—no fresh air intake or exhaust fan being provided. The fans, however, are operating *inside* this chamber, to keep the air in rapid motion.

When the ware has been held long enough in compartment No. 1 to insure its having become well heated thru, it is now ready to meet the strains of drying, and the metal curtain communicating with the next compartment (No. 2) is raised, and one car is let down into compartment No. 2. In this compartment all fans are operating, intake is open, and drying takes place.

From compartment No. 2 to No. 3 puts the ware into the finishing chamber, where heat and circulation are at the maximum.

When the first car at the delivery end is dried sufficiently, the metal curtains are raised, a lever is moved, the projections on the cars are engaged by the moving chain conveyor, and the car is moved outside the drier. At the same time all the remaining cars are moved forward one car length—one car from compartment No. 2 enters No. 3, one car from compartment No. 1 is let down into No. 2, and another car of green ware is drawn into the drier at the receiving end.



Interior View of Proctor Drier

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*Read by Harold Copping, before the 35th Annual Convention of the Iowa Clay-Products Manufacturers Association, February 3-5, 1916.

A 1½ Ton Federal Hauling Clay Products

How Would You Like To---

operate a "railroad" of your own

with which you could haul speedily, and over long distances when necessary, right from your door to the exact spot desired without needless rehandling and delay?

The Federal Truck is a veritable small railroad hauling your goods from your place of supply right to the destination—forty or fifty miles if necessary.

The Federal's ability to transport large tonnage over wide territory economically, makes it possible for you to expand and reap bigger profits.

You want a truck that "stands up on the road."

Investigate the Federal.

Write us for practical reports showing costs and results of Federals in the clay products industry.

Our magazine "Traffic News" sent free upon request. You will be interested in the many stories of actual haulage experiences.

Federal Motor Truck Company
Detroit, Michigan
1½, 2, and 3½ Ton Worm Drive Motor Trucks.

Plymouth Locomotive Hauls 100,000 Brick at a Cost of $2.85

The Fredonia Brick Co., of Fredonia, Kas. used to haul clay with a steam hoist. It bought a Plymouth and has greatly reduced not only the labor and fuel cost, but its per ton mile cost is also greatly reduced.

The Plymouth at the Shale Bank of The Fredonia Brick Co.

The Fredonia Brick Co. Says This:

"Our Plymouth, which we have had two years, does a daily duty of 100,000 brick in ten hours on a haul of 800 feet, each brick weighing 6½ pounds green," says The Fredonia Brick Co.

"We pay a laborer $1.75 a day to operate The Plymouth and we use six gallons of gasoline daily at 90 cents, and half a gallon of lubricants at 20 cents—total, $2.85. This is considerably cheaper than the steam hoist, giving us a cost reduction in labor, fuel and in ton mileage.

"The Friction Drive lives up to all the claims of the makers as to power, economy of operation, as to simplicity and reduction in repair bills."

The Plymouth
Gasoline Industrial Locomotive
Does These Six Things:

1—It is the cheapest haulage system to buy. 2—It is the cheapest haulage system to install. 3—It is the cheapest haulage system to operate. 4—It is the cheapest haulage system to maintain. 5—It has greater draw-bar pull than any other locomotive. 6—It has greater traction pull than any other locomotive.

The Plymouth Will Do These Things For YOU:

If the Plymouth will haul material for The Fredonia Brick Co. cheaper than the steam hoist, is it not reasonable to suppose that it will haul your clay and your brick cheaper for you than some other system? It is worth while investigating at least, it is not?

THIS BOOK TELLS

We have a big book full of real facts and real figures from other clayworkers who own Plymouths. It is full of cost data for all kinds of haulage problems, and it is illustrated and contains description and specifications as well as other valuable information. Every clayworker should have a copy. You may have YOURS for the asking. Use coupon at the left.

The J. D. Fate Co.
240 Riggs Avenue
Plymouth, Ohio

The J. D. Fate Co.,
240 Riggs Ave.,
Plymouth, Ohio.

Send us The Plymouth Book of Facts, this request not to obligate us.

(Firm) ....
(Your Name)....................
(City) ....
(Street) ....
(State) ....

The temperatures maintained in the several compartments are governed by the character of the material to be dried and the time given to the operation—no standard temperature, or time, will apply to all clays.

In one plant where the Proctor drier is in operation, a temperature of 120 deg. is carried in the first compartment, 150 deg. in the second and 210 deg. in the third compartment. With these conditions, they are safely drying *nine-duct conduits* in six hours. The time formerly taken for this was over four days.

The Proctor drier is no experiment. It has been in successful operation for the past year on some of the most representative plants in the country. In one case the time formerly taken to dry the ware was eight days. The Proctor drier was installed under a guarantee to do the work in 28 hours. They are drying their product today safely, without loss, in 24 hours.

At another plant the time formerly taken to dry the ware was 48 hours. The manufacturers of the Proctor drier guaranteed to handle the ware in 24 hours. They succeeded in drying the ware in 12 hours, and without loss.

Still another case may be cited, where the drier is in operation, drying conduits in a few hours—without loss. (Checks and cracks in this class of ware are not permissible.) At this same plant four-inch drain tile are dried in *one hour*. The claim of the manufacturers, that their drier is safely drying clay wares in as short a time as *sixty minutes*, incredible as it may seem to many, may be verified by a visit to the plants in question.

The Proctor drier possesses features found in no other type of drier: the perfect humidity treatment of the ware, so necessary for safe drying of "tender clays"; the agitation of the air, so that it is whipped into every interstice between the ware and into every part of the drier, so conducive to safe and speedy drying; the perfect control, as regards the humidity, temperature and air movement; the rapid drying possible with this drier, tending to minimize the scumming trouble in connection with certain classes of material.

These, and many other valuable features, place the Proctor drier in a class by itself.

The manufacturers, the Philadelphia Textile Machinery Company, Philadelphia, will gladly give any additional information desired.

A New-Process Paver

It is claimed for this process that it will enable every community to use its local products in the construction of its brick pavements, thereby securing at a reasonable cost the highest type of brick pavement, while at the same time patronizing local brick industries, which are at the present time unable to produce a satisfactory paver.

The principle of this process is the impregnation of porous clay, or shale brick, such as a uniformly burned stiff-mud common brick, or like porous material. After air and moisture have been removed the asphalt is forced through the brick by high pressure. (The brick, when cooled to normal temperature, contracts and retains the asphalt which has penetrated throughout the structure.)

The functions of the impregnating asphalt are: to penetrate the brick thoroly and fill the voids, and to act as a binder. The asphalt will not bleed nor become sticky.

The finished "Aspha-Bric" paver remains the same size as before being processed, and except for color retains the same appearance in every respect. (Any standard shape or size brick may be successfully treated with the "Aspha-Bric" process.)

As to its wearing qualities, it is claimed that "Aspha-Bric" resists abrasive wear, does not chip nor crack, nor does it expand or contract with the weather. It will wear uniformly and being entirely free from absorption of moisture, is a most sanitary surface for use in pavements.

"Aspha-Bric" pavements are designed for use with a special asphalt filler of the same chemical and physical characteristics as the asphalt used in the process of impregnating the brick. This requirement is important in effecting the proper bonding of the brick and insuring a monolithic and waterproof structure; it also enables the pavement to absorb all sound vibrations and shocks of traffic,—each brick being practically surrounded by a sound proof cushion. The brick are laid flat in the street.

Replacements in these pavements are made with minimum trouble and expense. There is no need of an expensive plant with trained mechanics, as the bricks are easily taken up and replaced and the pavement restored to its original condition by ordinary labor and with hand tools.

The results of physical tests on these brick are interesting. When subjected to the tests demanded of other standard paving materials, "Aspha-Bric" tests show a superiority which should insure a wearing life unequalled by any paving material now in use, being the only bituminous paving material that is annealed by heat in its true shape before being laid in the street for use.

It is stated that engineers may specify "Aspha-Bric" pavements with assurance that the sanitary and noiseless qualities, maximum durability and economy in cost of construction will justify their endorsement.

After subjecting "Aspha-Bric" to all the various tests demanded, some of the highest authorities in the United States have made reports on their findings, and these reports will be gladly furnished together with specifications covering construction upon request.

The use of this material is by no means confined to pavements; it is ideal for building sidewalks, sewers, etc., since it is moisture proof and neither bleeds nor becomes sticky,—opening up an almost unlimited field for use in various types of construction.

It will be of interest to the brick manufacturer to learn that the cost of installing the "Aspha-Bric" process at his plant is not excessive; and with the increased revenue on his product, the prolonging of the life of his kilns, the cutting down of his fuel bill and the increased capacity of his plant through the saving in time required in burning the brick, soon pays for itself.

The organization of John Baker, Jr., will cover the field thoroly in the promotion of "Aspha-Bric," and is especially well equipped to co-operate with the brick manufacturers throughout the country. In addition to having traveling representatives thruout the territory, they also maintain offices in Chicago, New York, Philadelphia, Boston, Birmingham, Kansas City, Denver, Minneapolis, Buffalo, Toledo, Richmond, New Orleans and Tampa.

Continuous Kilns

For a great many years the English, German and French speaking people in Europe have used the continuous kiln; have proved its wonderful economy and its ability to produce a high percentage of first-class ware.

This type of kiln has been developed strongly in the direction of having the ware move instead of the fire. In both of these types of kilns it is noticeable that the ware chamber is not excessively large, that concentration of the heat in a small zone gives the desirable results in fuel saving and high percentage of first quality ware.

It has been proved conclusively that the three requirements of speed, safety and economy in the burning of clay ware can only be accomplished by a kiln of relatively small cross section and plenty of length.

In America we are gradually realizing that the continuous kiln is the kiln of today and the future, and we have experimented with various degrees of success. Too large a chamber has contributed in considerable measure to continuous-kiln difficulties.

It also seems that the common-sense method of applying the heat would be at one stationary place, causing the ware to travel thru a constantly increasing heat to a maximum temperature for finish and then recede from

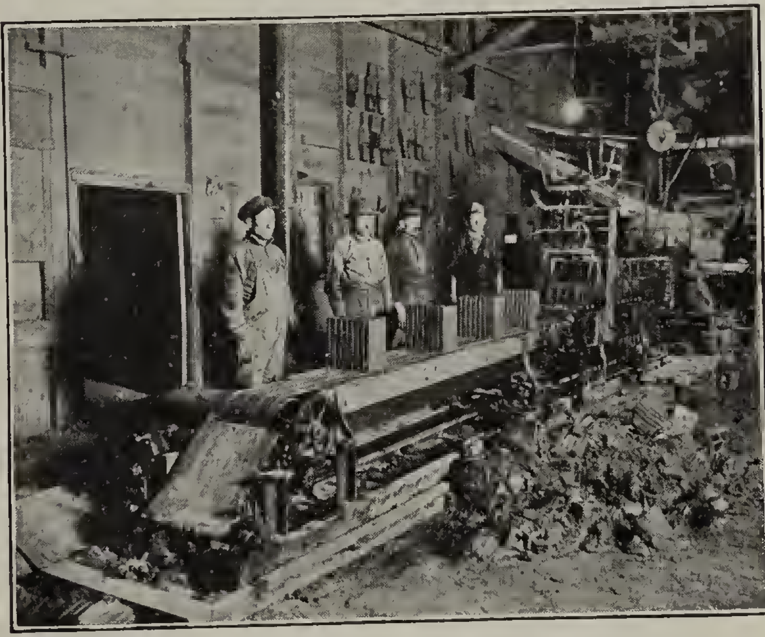
This Device Makes Profitable Hollow Block of Tender Clays

The New Fate "Type D" Cutter, with Automatic Delivery for hollow ware, has solved the problem of tender clays and is turning loss into profit for Clayworkers. It automatically cuts all hollow block up to 14x14 inches and delivers them on end, cutting labor cost and greatly reducing waste.

The Fate Type D Cutter
Revolutionizes Block Making

It delivers the block on end so that it may be safely and quickly handled on an off-bearing belt which may be run at any desired speed at will with the Fate Friction Drive.

It eliminates the man who, usually, has to stand at the end of the cutter, and it acts as an off-bearer.



Type D Cutter in plant of Troy Fireproofing Co. Note waste pile in foreground, made before this machine was installed.

The Troy Fireproofing Company Gives New Device Hard Test

One of the "Type D" machines is in use in the plant of the Troy Fireproofing Co., Troy, N. Y. The clay here is so tender that prior to the installation, it was difficult to produce ware at a profit because of the waste at the delivery end of the cutter.

The "Type D" Cutter reduced this waste to a minimum and the Troy plant now produces a perfect hollow block at good profit.

GET THE FACTS We have a big book of facts. It contains information about the entire line of Fate Clayworking Machinery. Every Clayworker ought to have a copy. Your copy will be sent for the asking. Use this coupon at the right.

The J. D. Fate Co.
240 Riggs Avenue
Plymouth, Ohio

The J. D. Fate Co., 240 Riggs Ave., Plymouth, Ohio.

We are interested in the following machines or devices and ask that you send us special printed literature on the same, without obligation to us:

(List Items Here)..............
....
(Firm Name)..............
(Your Name)..............
(City)..............
(Street)..............
(State)..............

SAY I SAW IT IN BRICK AND CLAY RECORD

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

the heat, gradually cooling off. The merits of this system are obvious.

This kiln has a relatively small cross section and as a result the uniformity of the burn approximates 99 to 100 per cent. and the speed and economy factors are satisfied.

The furnaces are centralized in one position, and as a result each single section of the kiln remains always at its own temperature. The two great advantages here are: first, the elimination of expansion and contraction, with the consequent quick deterioration of the masonry; second, the elimination of heat losses due to the alternate heating and cooling of the kiln chambers.

The Didier-March Company six years ago perfected a kiln along the lines so briefly outlined above, and after years of service the results prove even better than anticipated.

The kiln has been used to burn a variety of products, including fire brick, fire clay shapes, porcelains, metal lath, etc.

There is no doubt of any kind whatever of the ability of the kiln to produce, for this has been demonstrated in commercial practice.

The continuous railroad tunnel kiln has come to stay, on a hard won but splendid reputation.

Claycraft Brick Company Cuts Haulage Cost

The Claycraft Brick Company of Columbus and Groveport, Ohio, apparently has solved the haulage problem, so far as its own plant is concerned, as it has cut down the costs at the Groveport brick yard 60 per cent., or more than half. It is now hauling raw clay from the shale pit to the mill at a cost of 40 cents per thousand brick instead of 60 cents per thousand, which was the cost under the former system.

This cost reduction was brought about by the substitution of a gasoline locomotive for horses, and the story of the achievement is fully described in a book of 96 pages entitled, "Cutting Haulage Costs in Half With a Plymouth Locomotive," just off the press, and issued by the J. D. Fate Company of Plymouth, Ohio.

M. J. Kaufman, the purchasing agent of The Claycraft Company, offers some highly interesting data and information on Page 65 of the book mentioned. He says:

"Some data as to cost of operation of The Plymouth Gasoline Locomotive which we installed early in 1914, we believe, will be of interest to you. We used horses prior to this installation, requiring three, which were valued at an average of $225, making a total investment of $675. This investment, with the extra equipment in the way of harness, stables, etc., brings the installation up to about that of The Plymouth. This comparison, however, is unfair to The Plymouth, as we have more power with it than we had with the three horses. If we had to buy enough extra horses to put the old system on an equal basis with The Plymouth the investment in horses, etc., would be greater than the first cost of The Plymouth.

"It costs us $2.22 per day for operating a Plymouth as compared with $5.25 for the horses, and we are getting much more work out of The Plymouth than we did the three horses.

"But this is not taking into consideration that we are handling more clay per day now than we were before and, when we figure on the cost per thousand brick for clay delivered at the shed, our saving is greatly increased over these figures.

"There is another gain, from a mining standpoint, in the fact that our clay digger has an increased capacity, because we can keep empty cars at the pit ready for our men and they are idle only a very little of the time.

"The cost of storing clay, since we have used The Plymouth Locomotive and six additional clay cars, has been 40 cents per thousand brick as against 60 cents per thousand brick when we used horses and six less cars.

"This saving of 20 cents per thousand brick on our production

Plymouth at Mill Incline, Claycraft Brick Company more than paid for both the locomotive and the cars in the first year's use.

"Our frank opinion of The Plymouth Friction Drive is that for durability, ease of operation, and for work imposed upon it, it cannot be beat. It is not only satisfactory in every detail, quick in operation and response to the will of the driver, but a common day laborer, with little instruction, easily can operate it. The claim that the friction transmission practically eliminates transmission lubricating oil is consistent, as all the lubricants we use, and this amount is small, is what is necessary on all locomotives—that is, for bearings and similar lubrication.

"We have convinced ourselves that the gasoline type of locomotive is far the best machine for our services and that The Plymouth cannot be beat by any other make."

The book mentioned above, "Cutting Haulage Costs in Half With a Plymouth Locomotive," not only contains the Claycraft Company's experience, but that of scores of other clay plants, both large and small, the cost data and information being equally as complete. The book is copiously illustrated with full page illustrations and every clayworker ought to have a copy, which may be had without charge by addressing the J. D. Fate Company, 241 Riggs Avenue, Plymouth, Ohio.

Belt Dressing

A good belt dressing, properly applied, saves in many ways. It protects the belt itself from wear, lubricates the fibres and keeps the belt pliable, and tends to give it a great deal longer life.

In power saving it is very effective, the belt is prevented from slipping and, due to this fact, it can also be run with considerable slack, securing greater area of contact between the belt and pulley. Tight belts are not only destructive to the belts themselves, but create an excessive friction in all journal bearings on line shaft and machine, and the power required to overcome it is considerable.

The Garnet Company of Allentown, Pa., have for years manufactured a very fine protective dressing. Advise your requirements, and the kind of belting that you use, in writing to them.

A Manless Job

There is certainly today a greater demand for labor than ever before. The situation is acute, and the addition of even one man to your force would be welcomed.

The condition is widespread and has hastened materially the day of labor-saving machines.

In this short story we are referring specifically to a machine that eliminates the necessity for a "pugger." This, a difficult and an exceedingly important job, is a source of worry on two counts. The "pugger" doesn't always show up for work, and he doesn't always do the pugging to suit changing conditions, allowing clay to vary in temper, from too soft to too dry.

He can be eliminated; he can be used to fill in a short gang of setters, of bearers, etc. You can save the $2.50 per day you pay him and get the work done better. You can do it by installing a Schaffer Poidometer.

It automatically weighs and apportions the correct amount of clay and water; the pugmill runs evenly; the ware comes out of the angler always the same; the dry house man's job is simplified; you pay less, get better ware with less loss of ware than ever before, and only the Schaffer Engineering and Equipment Company, of Tiffin, Ohio, can furnish it to you.

Motor Trucks of Today Compared with Those of More Than a Year Ago

Phenomenal advancement in motor truck construction and operation has been accomplished, and the manufacturer who had the desire, and has tried to make a good truck for a year past, has had no reason for not making successful motor trucks. Failure to do so can only be accounted for by a deliberate substitution of cheap materials in an attempt to obtain a low selling price.

Up until a year ago, motor trucks, while considered good

Reduce Your Belt Bills

In buying belting, the last thing to be considered is the first cost. The important point is to select belting that exactly fits the requirements. In some cases, none but the best should be used; on the other hand, a less expensive grade may give perfect satisfaction where the duty is not so severe.

With us, belting problems have been matters of constant study for more than 30 years—the results of this experience are at your service without cost or obligation.

Put your belting problems up to our experts.

Quaker City Rubber Co.

PHILADELPHIA
629 Market Street

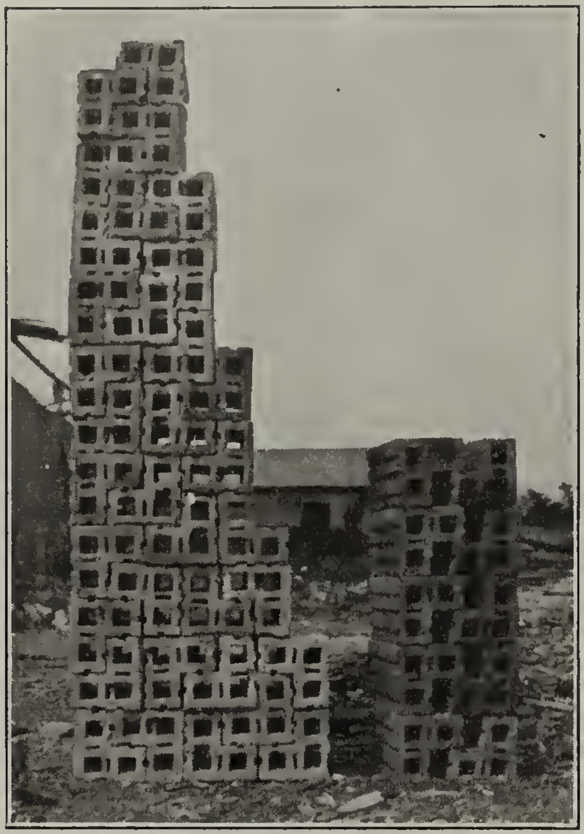
CHICAGO
182 West Lake Street

PITTSBURGH
211 Wood Street

NEW YORK
207 Fulton Street

SAY I SAW IT IN BRICK AND CLAY RECORD

"Samson Interlocking Tile"
Patented



In the above cut a construction of Samson Interlocking Tile is shown, which is the most modern form of construction for dry kilns, refrigerators and small residences, as it is almost impossible for moisture, heat, frost or sound to strike through walls built in this manner.

The construction on the left shows a wall commenced at 21 in. and reduced to 9 in. This is an exclusive feature of Samson Tile.

SAMSON INTERLOCKING TILE builds any thickness of walls without the use of other forms of tile, those and other exclusive features make this the most modern building material.

Three tests of SAMSON INTERLOCKING TILE, made at the University of Wisconsin, show respectively the following crushing strength: 1060, 1310 and 1040 lbs. per sq. in. This will give you some idea of the great load bearing capacity of "SAMSON INTERLOCKING TILE."

Write today for Manufacturing rights for unrepresented districts.

W. W. SMITH

Shallow Lake, Ont. Canada

and not by any means failures, showed a tendency to create an excessive expense for both the manufacturer and owner in upkeep. This was not due entirely to inferior workmanship, nor can it be entirely blamed to the then not fully developed constructional units; but was largely accounted for by excessive speed, lack of attention and overloading.

In the motor truck of today the height of perfection has been reached, the manufacturers have discovered and corrected the weak places in construction, more capable drivers have developed who better understand the care and attention of their trucks and owners have been educated to see the false economy of overloading. This combination has practically obviated all the troubles and expenses previously encountered, and the 1916 buyers of reliably made motor trucks can safely figure on uninterrupted future service.

The reputation of the older manufacturers has been assailed time after time by the new beginners in the field on account of trucks made by the former three or four years ago failing to measure up to the standard of efficiency maintained by trucks of their more recent construction.

For example when exploiting the sale of a new truck in the Cincinnati market, salesmen will compare that truck with the Armleder. This comparison will be made with an old Armleder built probably five or six years ago, not in any case with a late model because it is here where the pioneers of the motor truck industry have the advantage. They have had an experience that is yet to come to the new manufacturer and have profited by that experience to the extent that the Armleders of today are made to be serviceable even when severely abused under the most adverse conditions.

The past few years have seen a great reduction of prices. This has been due to the perfection of the various units, eliminating replacements, and the increased demand, reducing selling costs.

There is, however, a minimum price at which a good, honest-built truck can be sold, and to go below that price means to relapse back into the old experimental days of lighter construction and cheaper assembly, for which the buyer must pay dearly in the end.

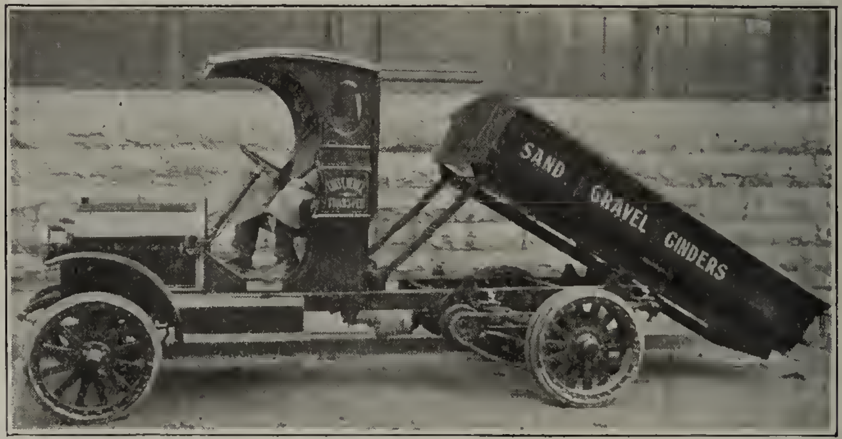
When buying a motor truck, don't expect something for nothing; buy that which is right, at a higher price if necessary, but at a consistent, not excessive price for the extra quality.

The Armleder Company, like many of the other older manufacturers, have passed thru their experimental stages at a heavy cost to themselves as well as to some of the earlier buyers of Armleder Trucks, but more than a year ago their various models were standardized and developed to the latest word in construction, and since that time there has been no truck sold by them that caused either themselves or their customers a moment's anxiety, and there is not an owner but who will give highest praise for the performance of his truck.

If you buy an Armleder you get a modern truck of great merit, and you buy it at its true value and not at an excessive price.

The Armleder Model "K-W" is the one that appeals particularly to clay products manufacturers and dealers. It is a 3½ ton capacity, with worm drive, Continental motor, Timken roller bearings, Brown-Lipe selective type transmission, and other standard equipment that makes for the highest degree of service.

The Armleder Company has a sales policy different from any other truck company—it will pay you to find out about it. Address them at Cincinnati, O.



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BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

Comment, Criticism and Advice on Live Issues Affecting the Manufacture, Marketing and Manifold Uses of Burned Clay Products

FOLLOWING OUT the announcement that they would not press their demand for higher wages while the Mexican situation was acute, the railroad employes, now believing that all is quiet and peaceful on the border, have taken a vote in their various locals and by an overwhelming majority have placed the power of calling a nationwide strike at any moment into the hands of their officials.

There are many citizens in high stations of life, and perhaps some manufacturers, who scoff at the very idea of a railroad strike, believing it to be an utter impossibility. They cannot conceive that the nation will tolerate, for one moment, cessation of traffic on the country's carriers.

One month before the opening of the great European war there were equally as many diplomats and men of high rank in the nobility of England, Germany, Russia, France and the smaller countries across the water, who termed the possibility of a strife such as has been going on for the past two years, as highly preposterous. Yet, within thirty days after the pronouncement of these confidently wise opinions, the greater part of Europe was on fire with the passion of conflict.

The railroad managers have taken their stand as being in favor of arbitration and the submission of the controversy to the Interstate Commerce Commission. They have spent a quarter of a million of dollars in an effort to educate the public on the issues involved, explaining why they cannot give in to the unions and why there must be full arbitration.

Congress can do its part in saving the nation from the possibility of a disastrous strike by passing the resolution recently introduced in the upper house by Senator Newlands, directing the Interstate Commerce Commission to investigate the controversy. This bill should be passed at once and before Congress adjourns.

Keeping Men Contented

IT IS NOT unusual to walk into a plant these exceedingly hot days, especially in the early afternoon, and find it deserted with the exception of an unfortunate (in his fellow workmen's eyes) burner, and possibly the superintendent. Glad to take advantage of what is usually a good excuse and, partly because the heat has sapped the greater part of their energy, the men have gone home for the day, altho there are orders to be filled and ware to be shipped to waiting contractors with whom a delay, because of a lack of materials, might be very serious. It is too hot to work, they say.

This brings to mind the experience of a former superintendent in handling men during the hot weather, that with a few alterations or additions might be made to help you or your plant superintendent in maintaining capacity operations in spite of the heat.

This man started his men to work at five-thirty in the morning during July and August, giving them fifteen minutes about nine o'clock for rest and refreshment and then working until eleven-thirty, when a half hour was taken for lunch. When twelve o'clock came, the men resumed work and then quit about four o'clock in the afternoon, putting in ten hours every day.

In order to keep the men contented with this program, this superintendent purchased between one and two dollars' worth of lemons every day and an equal amount of ice, which he turned over to a cheap boy, who spent about half of his time making lemonade. This cooling drink was distributed among the men during their fifteen minute rest period in the morning and again after noon.

Altho the providing of this lemonade for the men does not seem a big thing, yet it had a very good effect on them, keeping them satisfied in spite of the heat and dust around the yard. Speaking of the difficulty of getting labor nowadays, this superintendent says that men from neighboring plants came to him to work for no other reason than that he was considerate of their comfort.

"Medication vs. Surgery"

NOW, that both the manufacturer of and dealer in face building brick have had an opportunity to express their views regarding the plan proposed by J. Parker B. Fiske of Fiske and Company, Inc., New York, N. Y., in his recent paper on "Price Cutting"—which views were published in the form of five letters in the July 18 issue of "Brick and Clay Record"—we will have the pleasure of reading what another writer has to say concerning this very important subject of curing the cut-price disease in the brick business.

"Medication vs. Surgery," by Frederic W. Donahoe, while coming as sort of a grand finale to the discussion, is, as that familiar saying goes, "last but not least." The thoughts which it contains, while not all entirely new, are refreshing and convincing.

It will be remembered that in the January 4 issue of this magazine, on page 39, was published a paper on the subject, "The Price That Pays," read by W. H. Hoagland, general manager of the Claycraft Brick Company, Columbus, Ohio, before the last annual meeting of the American Face Brick

Association at Old Point Comfort, Va. It is interesting to note that the following sentence was included therein:

"In establishing a price on first grade brick, it should be made enough higher than the cost so found to cover safely the losses in bad accounts, allowances made for one reason or another, discounts, etc., *as well as the losses on the culls and low-grade brick.*"

Mr. Donahoe, in his paper, brings out this last mentioned point very forcefully in outlining a remedy for price cutting that certainly looks good.

This idea of adding a sufficient profit on the first quality product to make up for the loss on seconds, is also being entertained by a few of the paving-brick manufacturers who have faith in it as a strong bulwark in price maintenance.

Politeness an Asset

"WHAT DO YOU WANT?" snapped a saucy-looking maid to a stranger who had just entered the office of a well-known clay products manufacturing concern, and who had stopped before a small desk on which a sign bearing the word "Information" had been conspicuously fastened. The stranger paused for a moment, trying to think of what there might be in his appearance or manner that justified such a shrewish greeting and wondered if the rest of the occupants of that office, including those in authority, were as uncordial as this combination information clerk and telephone operator.

The stranger handed her his card and requested to see the president of the concern. Needless to say, he went away from the office without seeing the president or one or two others with whom he wished to confer, and also feeling that, if he had any business to place with that concern, he would probably look for another company to supply his wants in this particular line.

Why? Simply because he had been made to feel that he was a rank intruder in that office, wholly undesirable and unwanted.

Later the stranger, by persistency, was able to get an interview with one of the officials he had been trying to see and found that he (the official) had been badly mis-represented by the information clerk.

A smile and a pleasant word do not cost very much and they go a long way in this world. It can hardly be expected that the clerk whose duty it is to receive callers and see that they are taken care of, should know of the relative importance of everyone who steps into the office, even after they have handed in their card. It would therefore seem that there is very little to be lost in according a civil reception, at least, to all callers.

More Bricklayers Needed

THE FOLLOWING news item is clipped from a country newspaper in Colorado and reproduced here because we believe it will make interesting reading for those engaged in the manufacture of building brick:

"After telephoning, telegraphing and writing over part of two states for bricklayers for the best part of two weeks, Charley Hamberger finally landed a couple of expert workmen and construction of the new pump and fire house is proceeding rapidly. Charley had such a time getting bricklayers, he said he felt like taking a couple of guns and a bulldog and going after them."

It looks very much as tho the contention that has been advanced by some manufacturers that a scarcity of bricklayers and masons is interfering very seriously with the progress of the burned clay industry in many localities, is thoroly vindicated by the above quoted item. However true this argument may have been in normal times, it is doubly true now when many building operations are being held up by the inability of the contractor to secure the necessary labor.

It is very evident that the party above mentioned went to some pains in an effort to secure the desired bricklayers, his activities extending outside the boundaries of his own state. While it is not the intention to give the impression that this one case is conclusive evidence that a scarcity of bricklayers exists all over the country, yet we maintain that it is a sign of the times. What we need is more good bricklayer apprentices.

Efficiency Banished

WITH characteristic pig-headedness and incompetence, one branch of the present Congress at Washington—the House—recently passed by an overwhelming majority a bill that forbids holding a stop watch over any artisan engaged on work for the government or making a time study of his operations by any other device. This bill also forbids paying government workmen premiums or bonuses in addition to their regular day's wage. Feeling that it had not gone the full length in inefficiency and bungling in handling the affairs of the government, the House has gone on record as being uncompromisingly opposed to any trace of efficiency in managing any part of Uncle Sam's vast force of workers and so struck scientific management—so far as governmental labor is concerned—a death blow.

It is not long since that there appeared in the columns of this magazine an article on "Paying High Wages" in which a clay plant superintendent set forth his experiences in handling men in the only logical way—by paying them for what they actually accomplish and not for another man's reputation. Unqualified success was the label put upon the bonus system of paying wages by this progressive superintendent, but our representatives in Washington have said: "No, you can't do that with government labor. We won't let you."

In a near subsequent issue of this magazine will begin a short series of articles on the application of scientific management to the operation of a clay plant, showing how production can be increased and costs lowered by following this line of procedure. Efficiency engineers have been working for years formulating principles that any plant can apply in its management in order that the best results may be obtained. Yet the men whom we have chosen to represent us in Congress say: "Nothing doing with that 'stuff' for the government."

There is little doubt but that the hand of organized labor was a powerful factor in bringing about the passing of the above-mentioned bill. Unionism, generally speaking, does not like scientific management, therefore the stop watch has been stopped, at least in the government's workshops.

WHAT *the* U.S. *is* DOING TILE

By Painstaking Attention to Farmers' Inquiries Regarding Drainage, "Uncle Sam" is Promoting Progress in This Important Agricultural Improvement

A Large Pond Thickly Covered with Tall Grass on the Farm of J. Fletcher Clark, near Easton, Md. This Wet Spot Was a Good Subject for Drainage Treatment

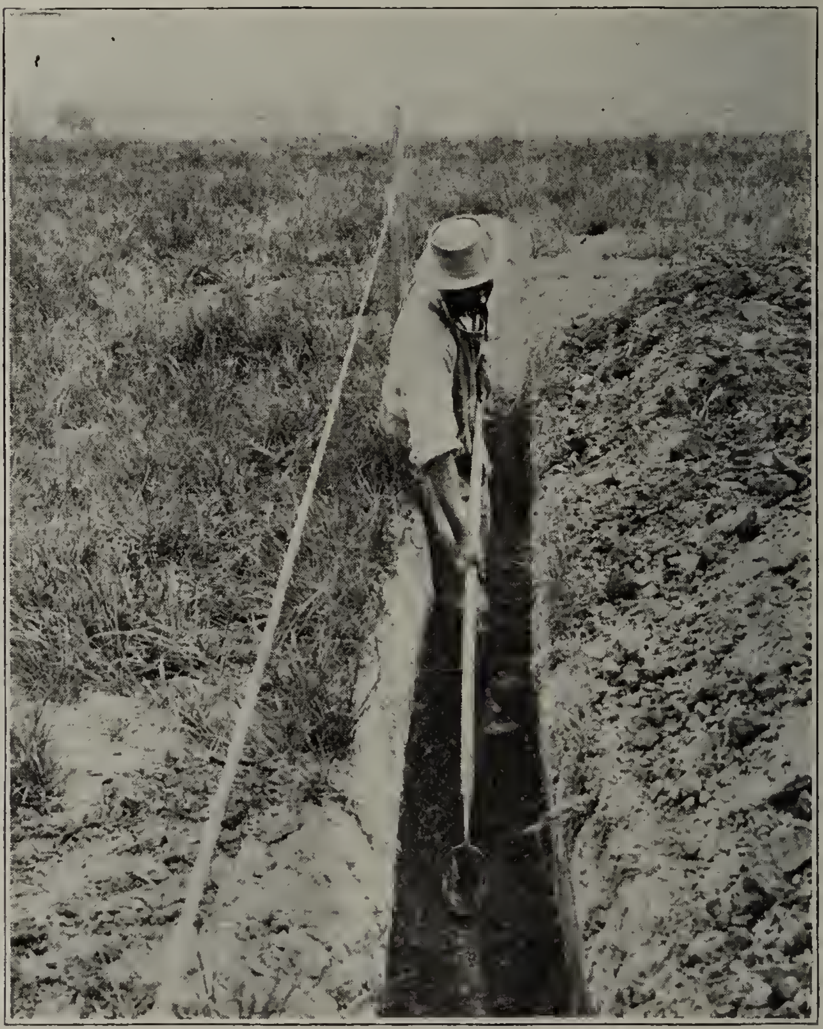
MANUFACTURERS of burned clay drain-tile have been fortunate in more ways than one, insofar as assistance in the marketing of their product is concerned. In the first place Mother Nature every once in awhile hands the farmer an unusually wet growing season which has the wholesome effect of quickening his steps in the direction of the manufacturer's plant or office to place an order for tile to be used in that long-deferred drainage improvement on his farm. Such a condition arose last summer with the result that this year nearly every drain-tile plant is "loaded to the guards" with orders which will keep the factories operating well into the coming winter.

However, those who have made a close study of the business tell us that the wet season is the exception rather than the rule, citing official figures and records to prove their point. And they are perfectly right about it. The one big obstacle in the path to bigger sales and large profits for the drain-tile manufacturer has been his tenacity in hanging on to the belief that when it rains the drain-tile business is good and when it is dry, he may just as well close up his plant, without making the least effort to change that order of things.

ANOTHER PROMOTER OF SALES FOR THE TILEMAKER

But there is another agency for good that has been quietly working for the tilemaker. It is none other than your good old Uncle Samuel, who labors far more steadily as a sales promoter than Mother Nature with her spasmodic periods of wet weather.

The United States Department of Agriculture has been cultivating within the past few years the closest kind of co-operation between itself and the thousands of farmers in the nation. As a result of this, hundreds of letters are received daily by that department asking for advice and help. This is only natural. The farmer puts a great deal of confidence in his paternal uncle. He trusts him far more than any other agency and, perhaps, individual. Among the many questions that are asked the department is: "How can I best drain my farm?" It is at



Grading the Bottom of a Tile Ditch with a Scoop on an Animal Husbandry Farm, Beltsville, Md.

GOVERNMENT *for the* DRAIN MAKER

Blue-prints and Detailed Instructions Covering Drainage Installations Are a Part of the Service of the U. S. Department of Agriculture

Same Spot on Clark Farm as is Shown in the Illustration on the Opposite Page, After a Tile Drainage System Had Been Installed and Was Working

this point that Uncle Sam puts in a good word for drainage, which eventually means, in nine cases out of ten, an installation of burned clay tile.

Such an inquiry reaching the department is immediately referred to the Office of Public Roads and Rural Engineering, a bureau of the department, where the letter is taken up and answered—not in a casual way, but in detail. Pamphlets, bulletins and blue-prints are sent to the farmer and he is invited to correspond further with that office if he finds it necessary.

Priming with a Shovel a Line of Tile After it Has Been Laid. The Man in the Rear is Back-filling the Trench with a Plow

BLUE-PRINTS GIVE DETAIL INFORMATION

In this connection, a set of five blue-prints which the department sends out has found wide circulation. These prints include, first, one showing the kind of tools to be used in digging the ditch and laying the tile. The second print shows the method of establishing the grade by means of cross-bars and grade cords. The method of making curves and junctions with the tile is shown in the third print, while the fourth gives detail dimensions and indicates the manner of building a bulkhead for the tile outlet. Surface inlets and silt wells are graphically pictured on the fifth print which also gives detailed dimensions for their construction. Space does not permit the reproduction of these drawings, but if any are sufficiently interested to follow the matter up, there is little doubt but that the department will gladly furnish a set of these prints for the asking.

As an indication of what those who are connected with the department think about drainage, and incidently burned clay tile, the following statements made by A. G. Smith recently in an interview are interesting. Mr. Smith said:

"Along the coast from New Jersey to Texas, inclusive, every state has gigantic drainage problems almost untouched, while thruout the country there are lands that must be drained before maximum returns can be obtained. In reality, drainage in the United States is only fairly begun, and its immense possibilities are but little known.

"An ideal system of drainage is adequate, permanent—

not a hindrance to cultivation—and uses the least possible land. Such a system is most nearly secured by the use of large outlets, either open or covered, into which tile drains empty.

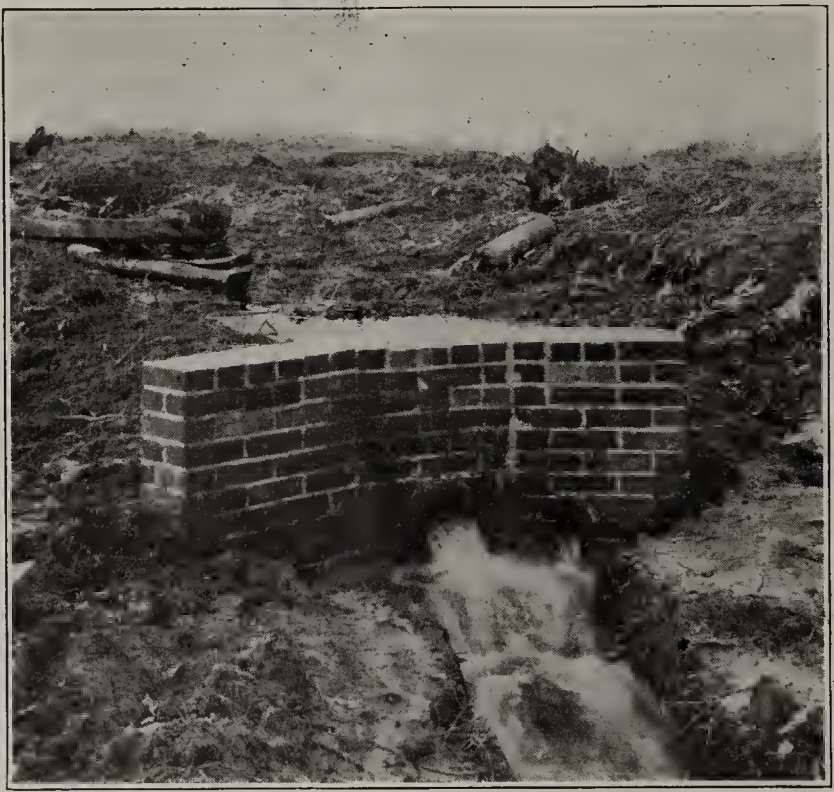
"The open ditch system commonly found in the south Atlantic and southern states, and occasionally in other parts of the country, does not fulfill these requirements.

"Two kinds of drain-tile are in common use," said Mr. Smith, "clay and cement.

CLAY TILE FROM THE GOVERNMENT'S STANDPOINT

"Clay tile can be made from any good clay suitable for making brick, altho the better the grade of clay, the better the quality of the product. They range from two to thirty-six inches in diameter and from twelve inches in length in the small sizes to thirty inches in the largest. All tile should be free from warps, uniform in shape, and smooth at the end. In Ohio and the states to the east both the hexagonal and the round tile are manufactured, but west of this only the round tile are made. Some eastern farmers prefer the hexagonal and octagonal to the round form, claiming that they are more easily laid. Others prefer the round tile, giving the same reasons for their preference. The hexagonal and octagonal tile are not as strong as the round and will not hold up as much weight. The round are more easily shipped and hauled. Both kinds do effective work, but the proportion of hexagonal and octagonal used in comparison with round is small, probably being not more than two per cent. of the total." Going further into detail concerning clay tile, Mr. Smith said:

"Soft, medium, and hard-burned or vitrified clay tile are made. It costs less to make the soft-burned than the hard-burned tile and the selling price is lower, but the quality is not as good. Soft-burned tile have done good service, however, and when put into the ground below the frost line have lasted indefinitely. The best tile are burned to a cherry red and when struck by a piece of steel give a sharp, metallic ring. In the North, where they are laid above the frost line, only hard-burned tile should be used. Hard-burned, or vitrified tile are practically non-porous; thus, they absorb little moisture and unless water stands in them, they are not injured in freezing weather. A tile that cracks and shatters in winter when lying in the yards unprotected from the weather is not fit to use above the frost line and is not the best under any conditions."


A Brick Bulkhead for a Tile Outlet, Showing How the Opening is Protected, by a Movable Grating, Against Rodents or Other Small Animals That May Run up the Line of Tile and Clog the Drain. Note the Flow of Water from the Land

Taking up the question of the life of drain-tile, Mr. Smith said:

SEVENTY-FIVE YEARS' SERVICE RECORD OF ONE DRAIN

"The life of tile is unknown. The first in the United States were laid in New York nearly seventy-five years ago and these are now doing as good service as ever. There are numerous instances where tile have been in use more than fifty years with no sign of deterioration. In fact, a drain of good tile properly laid may be considered permanent."

Another man in the department who advises the farmer on draining his farm, is R. A. Hart, supervising drainage engineer. Speaking of clay tile he said:

"Clay tile, when properly made of suitable materials, are very durable and may be depended upon however strongly alkaline the drain water may be. They should be vitrified and as impervious as possible; the walls should be smooth and of fairly uniform thickness; the bore should be cylindrical and the ends smooth. There should be no serious cracks or blisters, and the content of foreign material should be small. Lime, especially, should be avoided. Tile usually come in lengths of either one or two feet in the smaller sizes, and three feet in the larger sizes. Under ordinary circumstances the two-foot length is preferable for the smaller sizes, as tile of this length is more easily handled and keeps its position better, while sufficient inlet area is afforded by the two-foot spacing joints. The walls should be sufficiently thick to give the tile the strength necessary to withstand the pressure of the saturated earth."

U. S. EXPERTS BELIEVE DRAINAGE PAYS

There is evidently no doubt in the minds of experts of the Department of Agriculture but that tile drainage pays the farmer well. H. M. Lynde, senior drainage engineer, has the following to say on this question:

"It is evident that the tile drainage of farm lands is not an inexpensive operation. The exact knowledge of this cost, however, has little significance unless, at the same time, a fair idea of the profit, to be expected from the drainage, can be had. The extent to which tile drainage has been practiced, for instance, in North Carolina is not such as to bring before its people in general the far-reaching importance of this form of improvement. However, in Iowa, Illinois and other states in the Middle West, tile drainage is considered the most important requirement for successful agriculture. There is no reason for doubting that the installation of tile in the South pays returns as large as is the case in the Middle West, where the soil is no better.

"One of the reasons why tile drainage is not practiced more is that the results of underdrainage are not generally understood. There is also an impression that the critical operations of putting in a tile system are more difficult than they really are and landowners, fearing a mistake, decline to undertake the work.

"Tile drains, properly installed, are a permanent investment and very little maintenance is required. The increase of crops in from six to ten years will usually pay for the cost of drainage, after which this increase is an annual profit for an indefinite time."

MEDICATION *vs.* SURGERY

Wherein the "Disease" of the Face-Brick Business Is Diagnosed as an Abnormal Growth Calling for the Knife Rather Than Pill, Powder or Ointment

By Frederic W. Donahoe

SOME OF THE MOST eminent authorities in the face-brick business—manufacturers, dealers and association-workers alike—have agreed that the industry is, as the phrase has it, "enjoying poor health." And they have taken their pens in hand, to set forth many and various ways in which the patient may be treated, dosed, "scienced" and otherwise led into the happy land of fair profits.

To the man-on-the-fence it would appear as tho much of what has been printed on the subject had a strong family resemblance to the health maxims that found ready reading in the days of the patent-medicine almanac. It rings the changes on the symptoms and prescribes "cures," each one echoing, to a large extent, the personal problem of the man who has bravely rushed into print, and—as is usual in cases of this kind—each author sets about the rather easy task of regulating the other fellow.

The strides that have been made in the world of medicine during the past twenty years are too well known to need rehearsing. Time and again, it has been found that common ailments, like rheumatism, could not be "cured" by the application of some-one-or-other's oil, but lay in the removal of a *cause*—bad teeth, bad tonsils or diseased spots in the nostrils. In other cases, as, for instance, appendicitis, the surgeon's knife has removed a *cause*. The old plan of taking a teaspoonfull ever hour in a glass of water, has given way to the operating table.

THE TROUBLE AN ABNORMAL GROWTH

The face-brick industry is today very like a man who, knowing he is not as healthy as he should be, consults a physician. After following the advice for which he is paying with more or less regularity, and having swallowed one, two or three fillings of the prescription that he received on the occasion of his first visit to the doctor's inner office, he goes ahead, very much in the same way he was going when he first decided to put himself under the doctor's care. He goes back to his cigar, his occasional drink, his irregular diet and all of the other things that the physician told him to stop doing. So he goes around in a circle, until, having changed doctors several times, he applies for life-insurance.

Then, for the first time, perhaps, he finds some organic trouble, or some abnormal growth, and goes to a specialist, who recommends a trip to the hospital and *the removal of something that no medicine will ever reach.*

In the thirty or more years that have elapsed since the first "fancy brick" were manufactured, the industry has made but little progress in its selling methods. The product has been improved, the manner of using the product has been given the benefit of a wonderful amount of architectural thought, but the man who makes the brick has stood comparatively still so far as improving his methods of distribution are concerned.

He is an expert brickmaker but an amateur salesman.

He takes liberties with his selling price that he would not think of taking with his machinery, his kilns or his drier. And he pays the penalty of his own inexpert price-making.

Having consented to the thought that there is a relation between his cost and his selling price, he puts that thought away in some handy pigeon-hole in his desk, and makes his selling price to fit some near or distant market, or both. He adds the margin that he thinks "the traffic will bear."

In playing this price game, he forgets that he is playing with marked cards—that the price which certain markets will pay for his material is given him by men whose advice is inevitably tinged with self-interest—men whose prosperity depends upon their ability to buy as cheaply as possible, or, in other words, to get the best possible quality and service for the lowest possible price.

The dealer must be a good buyer as well as a good seller. In many cases he is merely a good buyer—after that, his is a "broker's office" for the sale of face-brick. Think, for a moment, of the broker's (I beg pardon, dealer's) position.

In the first place, he sells something to the manufacturer of face-brick. The thing he sells is his established reputation in the city where he maintains his office, his acquaintance with the architects and contractors in that city and his "equipment," that is, his exhibit room, sales-force, storage yards (if he has them) and his bank deposit—the latter to insure prompt payment of bills.

Is it not fair to assume that his acquaintance with local architects and contractors, and the broadening of that acquaintance into friendly business relations with them, was begun in his ability to give them better value for their money than his competitors? And is it not fair to assume, likewise, that these business friendships are continued by his ability to still give as good, if not better, value?

Does is seem plausible, therefore, that this dealer will pay any higher price for a manufactured article which he must resell in competition, than he is compelled to pay?

Yet it is his statement of market value—i. e., the delivered price on face-brick—that the amateur-salesman plant manager takes as Gospel.

There will be no health in the face-brick industry, or in any of its units, until the managers of those units, having found out just what brick costs to make (and this needs no elaborate cost-finding system), *set a price on their first quality product* that will bring a uniform margin of profit on every sale. And the margin must be large enough to spread over the "seconds," "thirds" and "culls" so that every brick produced on the plant will pay a profit.*

The management that would not think of "monkeying" with the steam-boiler or dynamo which drives the machinery should be similarly afraid to "monkey" with that selling price, and if New York, or Chicago, or Cleveland or Fort Worth *could not* pay that set, uniform price, then he should consider one, or two, or all of these cities as closed markets—closed to him because he could not enter them without slicing into his profits.

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*See paper by W. H. Hoagland, general manager of the Claycraft Brick Company, Columbus, Ohio, in the January 4 issue of "Brick and Clay Record" on "The Price That Pays."

It is a gross fallacy to believe that by making a high yard price on nearby shipments, he can maintain an average selling price in the face of low prices believed necessary to reach distant markets.

The abnormal growth in the face-brick industry is the desire of the manufacturers to meet conditions over which they have but little control and with which, as a rule, they are densely ignorant.

DOING "BILL" A FAVOR

In nine face-brick plants out of ten there is more joy over the receipt of an order for "graded seconds" at a second quality price than there is over an order for the same quantity of first quality brick at the full first quality price.

The first quality order puts a problem up to the yard superintendent. He must "find" that number of brick, or make preparation to burn them, with the consequent uncertainty of "off-kilns" and delays. The order goes thru in the regular way, and is cared for without calling upon the manager to exercise much of any judgment. But with the order for "graded seconds" there has been, in all probability, a letter that has told of the trouble the dealer had in "landing" the contract, of the sharp competition from some brick of, perhaps, equal quality, but lower manufacturing cost or lower freight, and the final happy (?) outcome—the order that is in hand.

Now "Bill," the letter-writer, is a good buyer. He wants a shipment that will run equal to his representations. What these representations were, he seldom tells—he leaves it to be imagined that the architect or contractor turned down a first quality brick and accepted a second quality shipment because he liked the color of Bill's hair.

Once in a while "Bill" sings a different song. It is that first quality brick are wanted but some off-shade will do; the first car or two to be all firsts—after that, mixed firsts and seconds. In any event, the amateur-salesman manager has an opportunity of doing "Bill" a favor. He just can't turn "Bill" down. There is joy in his heart and a great sense of friendly obligation to "Bill." He goes out, and "grades down" his firsts, or "grades up" his seconds, and, in the course of doing one or the other, robs himself and the other stockholders in his plant.

THE FALLACY OF OFF SHADES

In the burning of face-brick, there must, of necessity, be some variety of color. If a close sorting to shade is practiced, there will be a range of colors that seem to have a preference. These are the colors toward which the burning is led and it is these colors that are sent to dealers as standard samples. At the ends of these ranges—light and dark—and in certain in-between places, are "off shades" of which but few brick are obtained from each kiln, or which, by some process of reasoning on the part of the manufacturer, are found to be inferior to the standard colors.

There is a great deal to be said about the point of view; but what shall be said of the manufacturer who deliberately decides that certain brick he is making and which are equally dense, equally well made, equally presentable in the finished wall (according to the treatment or the architectural taste) are inferior to a certain arbitrary standard of color, and must be considered as worth less money than colors which have been generously sampled and widely sold?

The fitness of the commodity for the purpose is the true test of its value. If a face-brick is good enough for first quality work, it is good enough to bring a first quality price.

Where a reasonably high yard price is added to an unusually high freight and where competition must be met from a lower yard price made by some other manufacturer or a lower freight rate enjoyed by that other manufacturer, then the "better" or more attractive shades should be offered in that market, in order that the dealer may obtain the higher price that is necessary to give him a profit on the high yard price and the high freight.

"You are not sending us samples of your best colors" says the dealer in the nearby market. No—neither are you making him "hold still," while you shove ten dollar bills into his inside vest pocket.

Note the difference—you do not "grade down" your first quality brick because some of them are not as bright as others. "You "grade up" your first quality brick to make them competitive despite a high freight rate. That is professional salesmanship. Cutting the price, or "grading down" is rank amateurism.

ENTER THE SURGEON

Since the abnormal growth that is seriously interfering with the bodily health of the face-brick manufacturer lies in his perpetuating the sales methods of the small shopkeeper, who always has a little better price for the dominie, the widow, the cash customer *and the shrewd and hesitating buyer,* and because it is hopeless to try to talk him out of sales habits that have grown with the years, it seems necessary to lay him on the operating table and call for the ether cap.

The operation is simple. *It will consist of removing his ability to sell any first quality brick at less than a first quality price and also his ability to sell any second quality brick to any dealer for resale, or to anyone, except by direct purchase "as is" on the yard.*

The dealer having no option but to sell first quality brick and no chance to do a brokerage business (wherein he fits the highest price his customer will pay to the lowest price his manufacturer will take) is apt to turn his office into a *sales-office* and his selling force into a *sales-force.*

The yard superintendent will have to make more first quality brick. The setters will be made to set more carefully, the burners to *blame themselves when kilns are off,* and not blame the weather or the coal or the general evil disposition of the kiln itself.

Good, uniform *quality service* will be the watchword of the yard, and the high yard price will either be justified, or the yard will be closed. If the manager cannot get a profitable price for his firsts, the directors will see what can be done to get a new manager, or a new superintendent. Maybe the stockholders will do something about getting new directors.

THE MARKET FOR SECONDS

"But you are destroying our market for seconds" says the man who has played with his seconds as a dog plays with a bone. "How are we going to sell them if the dealers don't take care of them for us?"

So long as there is a "market for seconds" so long will you continue to run a very considerable portion of your plant on inferior material. If your "market for seconds" were closed, there would be more of the higher kiln temperatures around the superintendent's desk, and the burner's shanty, when a kiln "rolled" or a too hurried watersmoking developed stained, warped and cracked brick *in anything but a constantly decreasing proportion to your total burn.* It might be that some plant managers would wake up to the fact that a burner who kept on turning off bad kilns would be a fit subject for prayerful consideration and eventual discharge.

In the meantime, since dealers could not sell seconds, it would be perfectly fair to *sell direct to consumers* who would take the time and trouble to come to the yard and buy the second piles as they stood. The dealer's margin is $2.50 (and that, I understand, is the average) and the difference between first and second quality brick is $2.00 a thousand; now $4.50 per thousand is not a bad bait to offer a man who has a

50,000 order to place. At any rate, he would know what he was buying, you would know what you were selling, and the dealer could not complain, for he must realize that he has handled the "second" problem very, very badly.

He has used your seconds to cut your price on firsts. He has used your seconds to cut the other fellow's price on firsts. He has misrepresented your seconds to the architect who bought them, and has later crawled on his hands and knees to make them "stick."

If he has neither your seconds to sell nor any one's else to meet in dealer competition, he will put his selling energy on the sale of firsts, pointing out the poor results obtained with seconds. He will educate the buyer of seconds to either buy firsts or be satisfied with what he gets when he buys seconds direct.

And knowing that he cannot ask you for "favors" he will make you toe the mark on quality and service. When you know that you must toe the mark, and cannot "put something over" you will start an efficiency campaign in your yard that will produce results—results that probably will be as great a surprise to you as they will be to those stockholders who have waited, lo these many years, for a real dividend.

* * *

Paving-brick Manufacturers to Meet in Annual Session on the Banks of the Wabash

It has been tentatively announced that the next annual meeting of the National Paving Brick Manufacturers' Association will be held at Terre Haute, Ind., the sessions beginning at the Hotel Deming on Thursday, October 5. Plans are being laid to devote the following day, October 6, to the inspection of the monolithic brick pavements at Paris, Ill., a short distance from Terre Haute. Whether or not there will be any sessions on the third day, Saturday, October 7, has not as yet been decided.

Badgers Aid State College Ceramic Work

Students taking the ceramics course, given in conjunction with the work in the mining department at the University of Wisconsin, Madison, have been doing some very commendable work of late in the testing of clay samples submitted from various parts of the state for ascertaining their commercial value.

Until recently, very small machines were used in molding and testing the clay and its products, making the work in many cases, inconvenient, to say the least. The Wisconsin Clay Manufacturers' Association, recognizing the influence of the work being done by this department on the development of the industry in the state, became interested in improving the equipment a short time ago and has assisted in the replacement of the small machines with those of a larger and more modern type. As a result of the clayworkers' generosity and an appropriation secured by the university, the latter is now in possession of an oil-fired, down-draft kiln, an augur machine with a complete set of dies and a combination dry-press and dry-pan. Much of the engineering department's equipment is used in testing the finished ware.

Already the newly instituted course in the above-mentioned school has played an important part in the development of the clayworking industry in Badgerdom. As a result of tests made last year in this department a modern plant has been built at Marshfield, Wis., and several other companies are being organized for manufacturing clay products in Wisconsin.

Hollow Tile Manufacturers Reorganize Association and Elect New Secretary

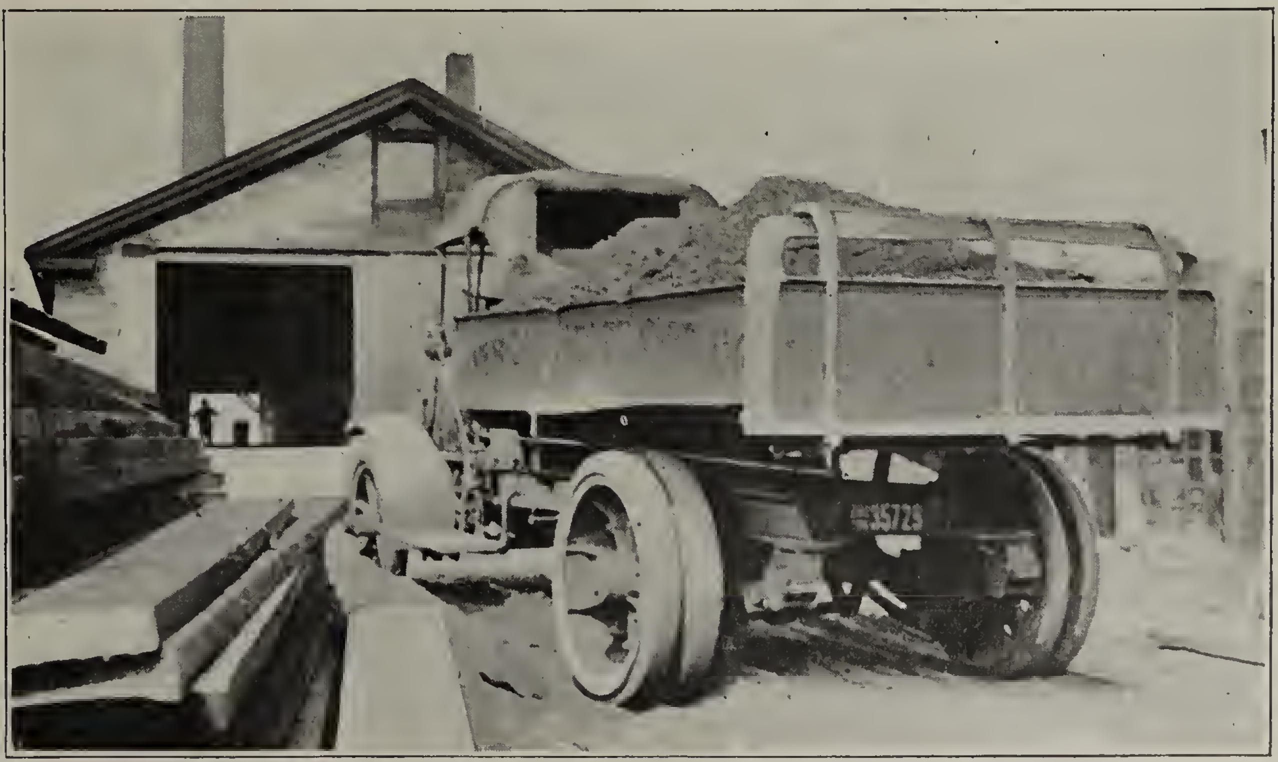
Meeting at Cedar Point, Ohio, on Tuesday, July 25, the Hollow Building Tile Manufacturers' Association of America adjourned *sine die* and then re-convened as a separate body, forming a new association and electing the following officers: H. H. Titsworth, president of the Clay Products Company, Indianapolis, Ind., as president of the association; H. C. Downer of the Malvern (Ohio) Fire Clay Company, vice-president, and R. F. Hall, secretary. The name of the association will not be changed.

The resignation of Charles T. Harris, former secretary, was accepted at a session of the executive committee held following the semi-annual meeting. Resolutions were passed expressing deep appreciation of Mr. Harris's work. He will be actively engaged in another business in Cleveland after September 1.

From PIT *to* PLANT *via* MOTOR TRUCK

The use of a motor truck around a clay plant is not limited to the placing of finished ware on the job. This tireless "steed" may be put to work hauling clay from the pit to the plant, as is done by the American Sewer Pipe Company at its Akron (Ohio) factory.

The capacity of the truck shown in the accompanying illustration is between six and seven tons, which load it hauls twenty-five times a day from the pit, a mile away, to the plant. The company has two of these trucks which have been in continuous service for eighteen months.



The OPEN DOOR *to* RESULTS *in* BURNING

How the Application of Pyrometry to the Most Important of All Clayworking Operations Can be Made to Yield Unlimited Opportunities for Saving Time, Fuel and Labor and the Securing of Better Ware

By C. O. Arbogust, Cr. E., and L. J. Sheridan

IN THE preceding article on pyrometers which appeared in the July 18 issue, was discussed the development of the pyrometer and its growing popularity, due to its ability to give accurate temperature readings and to withstand hard usage. We also explained the mechanical construction and the theory of operation of the thermo-electric pyrometer and the type of instrument that is best adapted to clay plant service.

APPLICATION OF THE PYROMETER NEXT STEP

A discussion of the practical application of the pyrometer is logically the next step, with the text supplemented by concrete examples of the savings effected and the unqualified successes realized.

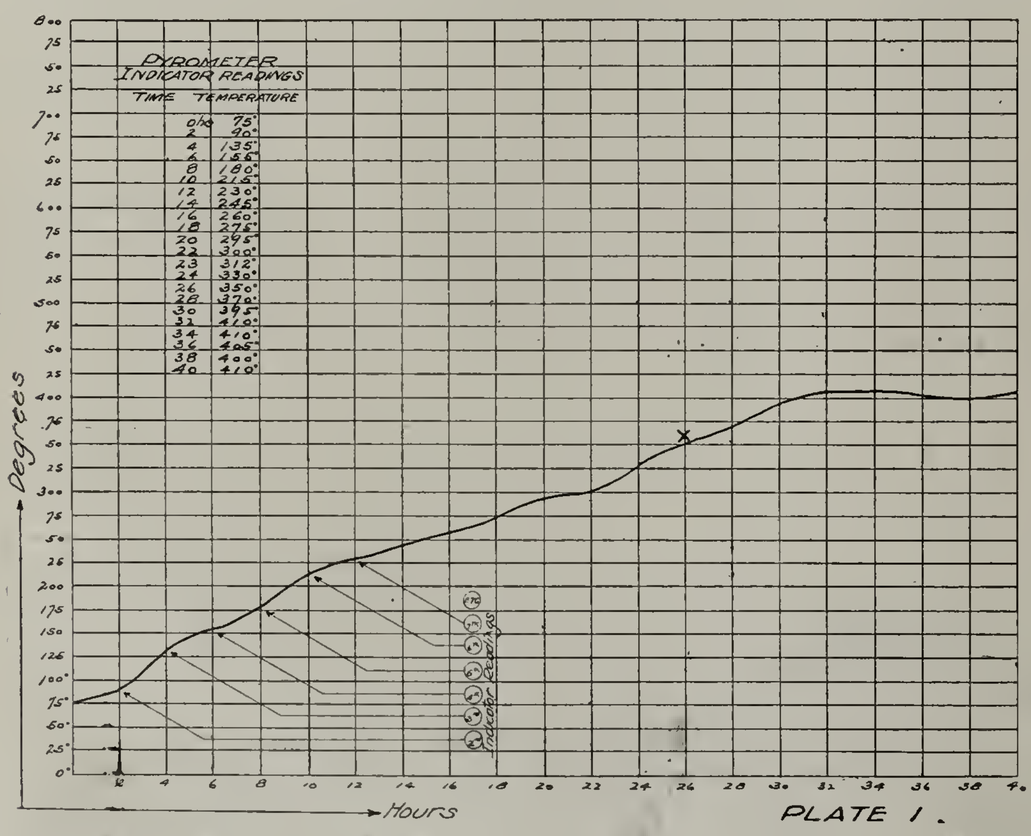


PLATE 1.

Drawing Showing the Method to be Followed in Plotting Curves

There is no doubt but that a need exists for a heat measuring instrument that will indicate accurately and instantly the temperatures being carried in a kiln under fire, yet for years the burning, which enjoys the distinction of being the most costly and the most important department of clayworking, has been continued without the amount of attention that is due it.

MANY OPPORTUNITIES AFFORDED FOR COST-CUTTING

The correct indication of temperatures in the kiln would accomplish many desirable results if those indications were recorded and carefully studied. They represent excellent opportunities for decreasing the time of burning, the amount of fuel needed, the labor item, and increasing the percentage of first-class ware.

A recognition of this fact is becoming universal among manufacturers of clay products, and as time progresses, the realization of the appalling waste of fuel that occurs each year is becoming more pronounced. With this realization, comes an increased use of the pyrometer, since it is recognized as the most important modern factor in the control of the kiln temperatures.

CHARACTER OF INSTALLATIONS SIGNIFICANT

Installations are not being made on practically every progressive plant without good reasons. The expenditure necessitated by the installation of a complete system must be justified or it would not be made by the plants that are today reporting satisfactory results.

In the steel industry when the "infallible eye of the attendant" was formerly the only indicator of the temperature, the quality and toughness of the different products which he turned out were variable and uncertain.

Now, however, with the aid of reliable pyrometer installations, a uniform steel product with a known strength is manufactured—pieces much lighter in weight are considerably stronger than those produced when temperatures were determined by the eye.

Much the same improvement has been made in the burning of clay products. Not only has a more uniform and higher grade product been turned out, but vast reductions in the expense of burning have been realized. So it is seen that what the pyrometer has already done to the steel industry, when it supplanted guesses with an exact account of the heat content, it is now beginning to do for the clay products industry.

It is an absolute impossibility for any burner to judge the heat that he is carrying in the kiln accurately. With the use of the pyrometer, however, uncertainty is abolished—the guesses of the burners are supplanted by readings of exactness showing precisely the condition of the kiln and giving records that may be used to study out a standard method of burning.

FOLLOWING "STANDARD" CURVE REQUIRES JUDGMENT

It is obvious that considerable judgment must be exercised in following a "standard" curve. If the clay varies, if the size and shape of the ware varies, if the ware is set wet, or part wet, if weather conditions are adverse, then allowances must be made, and the temperature brought up with due consideration given each variable. Otherwise low-grade results are sure to follow. A flexible plan depending on existing conditions must be used.

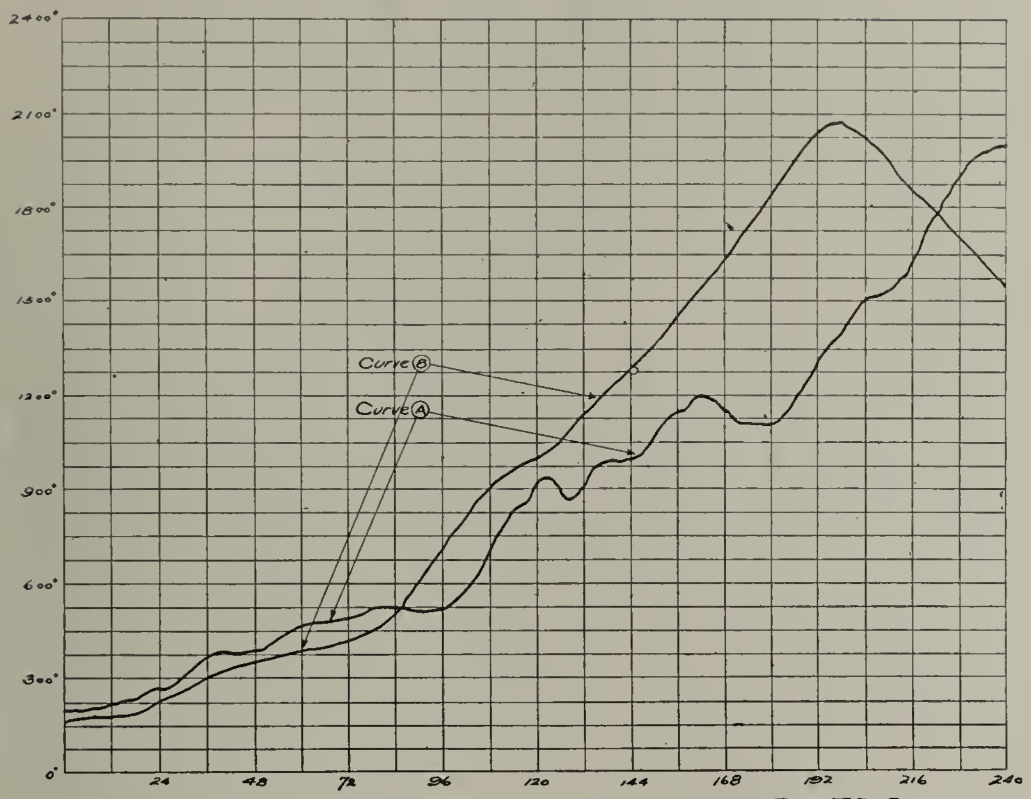


PLATE 2.

Showing the Saving in Time Possible When the Temperature of the Kiln is Raised Uniformily

One of the advantages of a recorder becomes evident when we consider the exceptionally good burns that often occur on a plant, in which the percentage of the No. 1 product is extremely high, the coal consumption low and the period of the burn shortened; all portions of an extremely desirable condition. When a recording instrument is used, it leaves a record of this burn that shows the exact course of the heat rise. If this record is studied in conjunction with a record of the method of firing that particular kiln of ware, a method of firing procedure is indicated, which if followed tends to duplicate the good burn. In time it may be with corrections accepted as the "standard" method.

MEMORY A POOR GUIDE

Should there be no other record than the memory, there is practically no possibility of getting the exact results a second time unless the factor of luck plays its part and duplicates the performance. At best, this can happen but seldom, whereas with the use of an instrument that records the heat progress of every burn, that gives the exact temperature attained at every period, there is no reason why any particular burn cannot be duplicated.

In detailing the principal points in the practical application of pyrometers to clay plant work it seems almost necessary to review the entire system of burning, so closely allied is the pyrometer to each separate phase of the burning operation. In each mechanical operation in burning and in every physical and chemical change that takes place in the clay due to the application of heat, the pyrometer and pyrometer records can be used to indicate with finality the safest and speediest course to pursue in order to produce a high percentage of first-class ware at a minimum of time, fuel and labor.

It constantly traces the progress of the heat in the kiln, it shows whether the heat is rising, falling or stationary. This in itself is the simple function of the pyrometer and, if the readings are thoroly studied and are correlated with the best theory of burning and with the local conditions, then facts of inestimable value can be produced for use in your own burning.

In order to get the best results from the pyrometer installation, it is necessary to plot the curves from the readings taken from the indicating instrument. A short description of the process follows:

TO PLOT A CURVE

A curve is a graphic method of showing the rise or fall of temperature in a given time. This class of curve is called a Time-Temperature Curve.

Referring to Plate 1, the hours are measured from left to right on the horizontal line, and the temperature is measured up on the vertical line.

At stated intervals the temperature is noted on the indicating pyrometer and the point made on the sheet, for instance if a reading is taken twenty-six hours after the start of the burn and found to be 350 degrees, the point is made where the 350-degree horizontal line crosses the twenty-six-hour vertical line, shown at X.

As each point is made on the chart it is connected to the previous point, so that a continuous line shows graphically the course of the heat.

On one plant, a large slate, 3 by 4 feet in size is used. The slate is ruled in sections and the curve is drawn with chalk. This method is exceptionally good as everybody passing can see the progress of the burn, and each

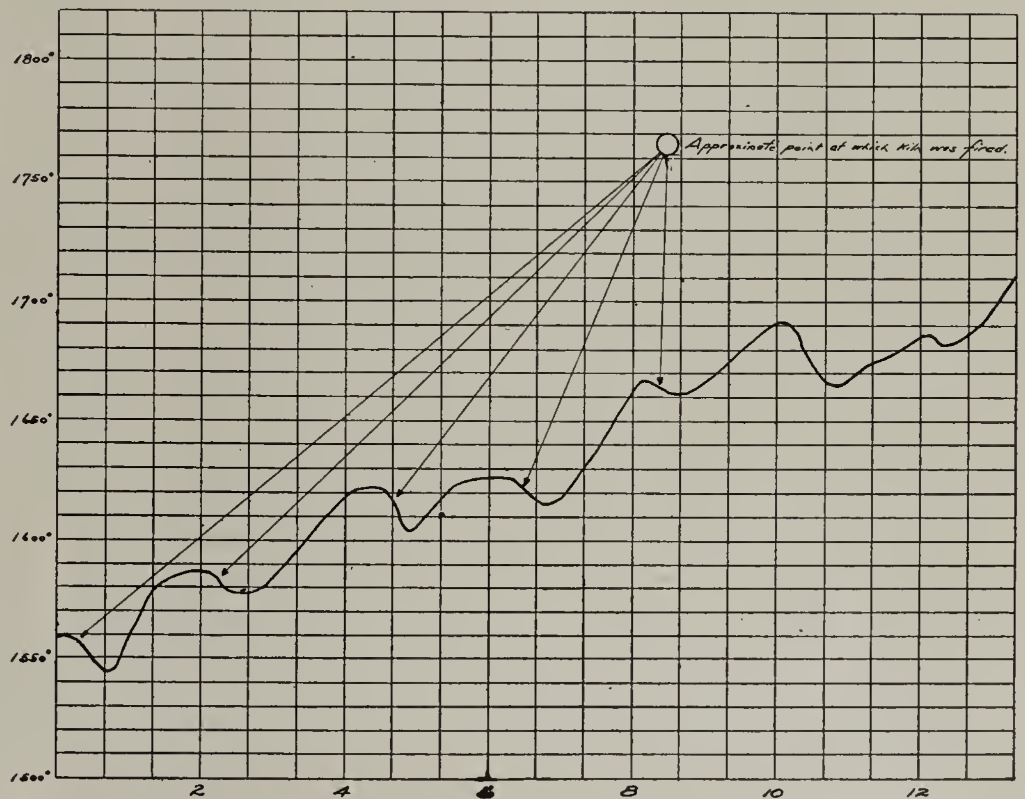


PLATE 3.

Curve of a Paving-brick Kiln that had Two-hour Firing Intervals, Carrying an Excessively Thick Bed of Coals. Note the Time and Heat Loss Due to Long Firing Intervals shift of burners is kept on their tiptoes to produce a curve on their twelve-hour shift that does not permit of criticism.

PYROMETER PUTS GINGER INTO MEN

The pyrometer injects new life and competition into the men, creates a new healthy interest in burning that in itself is responsible for some of the many different advantages accruing from its use, but if the pyrometer *accomplishes nothing else besides showing the course of the rise and fall of the heat, it would be worth installing.*

Due to this constantly available information, the kilns can be kept steadily gaining in heat, any tendency toward a loss in heat, or the kiln not gaining, can be noted and quickly remedied. The result is that the time of burning is materially shortened, and this is ordinarily the first benefit achieved after installation.

A glance at Plate No. 2 shows graphically the amount of time usually lost and the amount that may be gained by eliminating from the curve all time temperature points that do not follow the angle of rise.

Curve (A) shows the heat progress of a burn, during which the kiln was chilled twice, and allowed to stand stagnant at intervals with neither a gain nor loss.

Curve (B) shows the gain in time if the temperature is kept constantly to a finish.

In your further efforts to get the best use out of an installation, there are two entirely separate and distinct fields of study.

(1) Mechanical operation of the kiln.

(2) Control of physical and chemical changes that are due to heat.

Practically all clay plants will find it necessary to make both studies, altho those plants that have a tough clay, free from impurities and with a maturing temperature considerably below the fusing point of the clay, will not be hampered by the necessity for caution and study as indicated in section (2).

(1) MECHANICAL OPERATION OF KILN

In the mechanical operation of the kiln, all of the separate movements may be improved, the errors discovered and leaks ironed out by studying them and experimenting constantly by the aid of the pyrometer. It is an impossibility to detail all of the possible experiments here, and only a few of the most important will be indicated and analyzed with the aid of time-temperature curves.

They are:

(A) Firing furnaces.
(B) Cleaning and clinkering.
(C) Draft.
(D) Best coal to use.

(A) FIRING FURNACES

There are many different methods of firing the furnace, but there is only one right way. To find out the one best way to fire your own furnaces—that is, to find the method that produces efficiently the most heat in the cheapest manner—experiment with each method and keep accurate records including the time temperature curve during the experimental period. For instance, try first the effects of carrying a thick bed of coals, then gradually thin it down thru stages of decreasing thickness to a thin bed of coals and note results.

The "time of firing intervals" is closely related to the thickness of the fuel bed and it is important. Try hour and a half intervals, then hourly, and finally half hour intervals of firing, and if conditions permit, try twenty-minute periods.

Analyze the carefully recorded data and curves and in a short time the correct thickness of the bed of coals and the logical firing interval will be determined, that combination being selected which produces the desired results in the easiest and cheapest way. Plate No. 3 shows the heat advance on a paving-brick kiln that had two hours firing intervals carrying an excessively thick bed of coals. Note the cooling effect of the heavy bed immediately after firing, then the quick rise and finally the stagnation and loss in heat, during which time the furnaces were probably a glowing mass of coals producing little heat.

The pyrometer furnished conclusive proof that the temperature rise was spasmodic and therefore inefficient. It is truly surprising the way in which the applied principles of bag wall burning,* assist in the work.

This is an exceedingly important operation, which cannot be executed at stated intervals, but must be done whenever the furnaces need attention, if the best results are to be obtained.

(B) CLEANING AND CLINKERING

Few men realize the appalling amount of heat that is often lost during the clinkering period. It is easily possible to lose in heat the entire amount accumulated during the two, three or four hours of previous burning.

In cleaning it is sometimes necessary to practically empty a furnace in order to get out the great wads of fused clinker, and usually during this time the furnace is wide open, allowing an immense volume of cold air to be pulled into the kiln thru each furnace in turn. After each cleaning, the box is filled up with a load of green coal, which ignites slowly and considerable time is consumed before the boxes are again pouring heat into the kiln. The progress of the kiln is materially checked and very often the heat content is actually reduced back to that point that had been reached by the kiln some hours

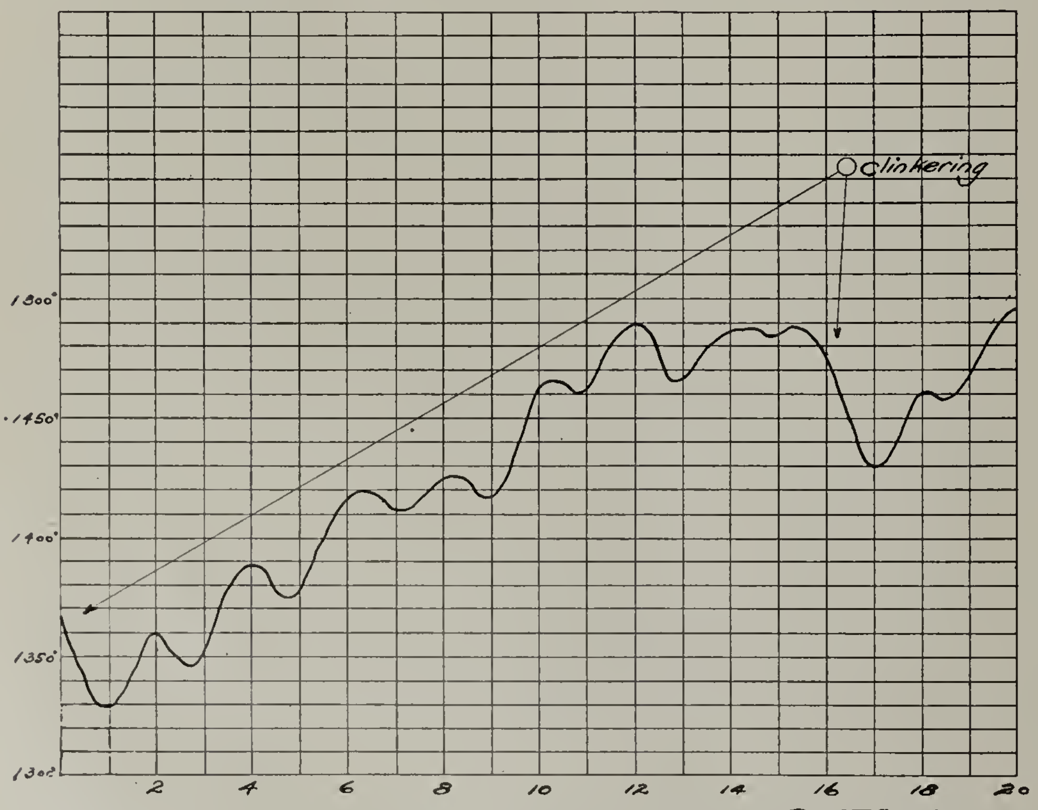


PLATE 4.

Curve Showing Time and Heat Loss Due to Long Firing Intervals and Improper Clinkering previous to the cleaning out of the fire-boxes.

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*Control of Kiln Temperatures, "Brick and Clay Record," Nov. 2, 1915 issue, page 670.

The pyrometer shows the loss as surely as a clock shows the passage of time, and as a result, it doesn't take long to eliminate the wasteful methods and conserve the heat content of the kiln during the cleaning process. Plate No. 4 shows plainly when the kiln was cleaned, once on each shift at 5 A. M. and at 8 P. M. The heat loss shows high, and it can be avoided. This kiln was also fired at two-hour intervals.

(C) DRAFT

It is of great importance and not always given enough thought.

The draft must be so regulated that it will satisfy these conditions. (A) It must be of sufficient strength to supply enough oxygen to the fuel bed so that combustion can take place at a required rate. (B) It must serve to carry the heat into the kiln and deposit it in the ware. (C) It must not be so strong that the fuel is consumed at too high a rate of speed and the generated heat carried thru the kiln without a chance to be absorbed by the ware.

The fires should not roar, the draft should leisurely act as a carrying agent for the heat and deposit it in the ware that it passes. If the draft is too strong or too weak, the heat falls, remains stationary, it is generated too fast or hot areas are produced in the top of the kiln.

The pyrometer registers the rise or fall of the temperature, and the correct draft for the different stages of the burn can be determined by a series of experiments, such as previously suggested.

(D) FUELS

There is a great difference in fuel. The coal that is good for one type of furnace or kiln may not be equally good on another, or it may be better.

All things considered, the coal that has the highest B. t. u. content is absolutely the best.

Impurities, such as bone, pyrites, slate, etc., militate against a coal.

One grade of coal, such as slack, pea, mine run, may be the best for your conditions.

A comprehensive test on the various kinds of coals may lead to a fuel being chosen that will produce infinitely better results in burning and save money.

The pyrometer serves to indicate without prejudice, which coal produces the most heat under given working conditions. Your note book gives the time, weights used and costs per ton. Under these circumstances, the best coal can be selected with a fair degree of accuracy.

(To Be Concluded in the August 15 Issue.)

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Dr. Edward W. Washburn Heads New Ceramic Teaching Staff at University of Illinois, Which Includes Cullen W. Parmelee of Rutgers College

The department of ceramic engineering of the University of Illinois will mark the beginning of a new college year in September by offering unusual facilities to those interested in the clayworking industries.

The field is broad and rapidly developing. Conditions imposed by the European war are prompting American manufacturers to extend their undertakings and have created an unprecedented demand for men who can lead, and for facts that will guide. The university has anticipated this demand. It is prepared to train men, thru the medium of a four-year college course, in the scientific and practical aspects of the industry, and to afford advanced students exceptional opportunities for the conduct of research.

The university has developed an unusually strong organization of men constituting the staff of the department, and it has erected and equipped, at a cost of nearly a quarter of a million dollars, a series of buildings especially designed for such work.

The starting point of any great work either in teaching or in research is in the quality and strength of the men who are to direct and execute it. The department of ceramic engineering is especially fortunate in having its setting in the midst of a great university organization. Ceramic engineering at Illinois draws support and inspiration from a large number of other departments of the university — from chemistry, physics, geology and from all the great departments of the college of engineering.

The departmental staff in ceramic engineering, as organized for the coming year, centers in the personality of four men of scientific and practical training, aided by laboratory attendants, potters and other artisans.

Dr. Edward W. Washburn, professor of ceramic chemistry and head of the department, was graduated from the Massachusetts Institute of Technology in 1905 and was made a doctor of philosophy in 1908. His life has been spent in the work of physical chemistry. For the past eight years he has been associated with the department of chemistry of the University of Illinois. His work as a teacher and as a contributor to science has been noteworthy. Under his skillful and discriminating leadership, the work of the department will be kept upon a high scientific plane.

Cullen W. Parmelee, professor of ceramic engineering, graduated from Rutgers College in 1896, and for the past ten years has been professor of ceramics and director of the department of ceramics of that institution. He was trained as a chemist, and was an honor student in chemisty. He has sustained important consulting relations with various potteries, has contributed extensively to recent literature, and has the distinction of having served as president of the American Ceramic Society.

Ralph K. Hursh, assistant professor of ceramic engineering, graduated from the University of Illinois in mechanical engineering in 1908, and has been associated with the work of the department since 1911. His practical experience especially qualifies him for work with the coarser clays.

Howard C. Arnold, instructor in ceramic engineering, graduated from the University of Illinois in ceramics in 1914. He was an honor student at Illinois. He received the degree of master of arts from the Ohio State University in 1916.

The buildings and equipment, which have recently been made available for the work of the staff and students of the department of ceramic engineering, includes a kiln-house equipped with batteries of oil-fired and coal-fired kilns and with the heavier machinery for preparing clays, and a main building occupied as offices, recitation rooms and laboratories.

Cleveland Reports Large Gain in Brick Buildings

The remarkable gain of twenty-five per cent. in the use of brick in Cleveland, Ohio, and vicinity, is announced by

Ralph P. Stoddard, secretary of the Society Advocating Fire Elimination with the turn of the month. This figure holds good in Cleveland proper, while in Cleveland Heights, a suburb to the east, a gain of fifty per cent. is noted. The S. A. F. E. admits that much of this gain is due to its propaganda work. That the year is likely to see even bigger gains, is the opinion of Secretary Stoddard from figures for the first half of 1916.

During May there was somewhat of a slump in building generally, mostly in residence work. In June this picked up a little, and July has proved to be normal, even being ahead of July a year ago.

Fears on the part of some that the fire limits extension ordinance of Councilman Rolf would have a discouraging effect upon building operations seem to have been set at rest. The fire committee of the council has reported the motion out of committee. The ordinance has been given several hearings before the committee, and the only opposition that has developed has been from the lumber interests, as might be expected.

No effort has been made to bring before the committee the men or firms engaged in the manufacture of brick or other fire resisting materials. Arguments made in favor of the plan were made solely by Mr. Stoddard.

On the other hand, the fire prevention committee of the Cleveland Chamber of Commerce, after investigating the ordinance, reported unfavorably upon it, on the ground that any such extension of the fire limits should be general thruout the city, and not confined to one section of town.

The council committee is now on vacation, but upon its return it is expected the measure will come to a vote at the session to be held the last week of August.

Plans Establishing County-owned Brick Plant

A departure in competition against clayworking plants, that is somewhat novel, is found in a plan now under consideration by the Montgomery County (Pa.) Controller, William D. Heebner of Lansdale, and the Board of County Commissioners, of which George D. Sullivan of Lower Marion township is the president.

The county expects to purchase a large plot of ground in some central location within its boundaries on which there is a clay suitable for the manufacture of paving-brick, and on this property it is proposed to erect one of the largest county-owned or municipal brick plants in the country, and probably the first of its kind in the Keystone state.

The brick are to be used in the building of county highways. It is estimated that the land can be acquired and the plant erected at a cost of $60,000. Labor to operate the plant, it is said, will be furnished by the prisoners who are constantly confined in the jail at the county seat at Norristown. A small compensation scale is to be worked out so that prisoners at the expiration of their terms will have some money with which to start life anew.

The only difference between this plan and others that have been followed along similar lines is that in most cases the state has been the important factor behind the establishment of a clay plant operated by convict labor or prisoners, while here it is proposed that the county get behind the undertaking.

Wood Shortage Threatens Connecticut Plants

A matter that is causing the brickmakers of Connecticut much concern is the shortage which is rapidly becoming apparent in the wood supply for burning purposes. In the vicinity of Berlin wood is becoming so scarce that some manufacturers declare they may be obliged to close down their yards. The brick yards use enormous quantities of cord wood in the burning process and, at present, some are unable to procure this necessary adjunct to the business. Formerly each yard had its own woods from which to secure the logs but the demands of the industry have been more than the supply and, accordingly, a few years ago the manufacturers in Connecticut began buying wood from various parts of the country and having it shipped to their yards, usually during the winter season so that the manufacturing season would not be impeded by a lack of fuel. Because of the shortage of labor during the past winter many yards in Berlin and elsewhere in Connecticut did not receive their usual supply and, consequently, the status of the industry is severely threatened. Each year the wood is ordered from places farther and farther away and a longer time is necessary to secure shipments. This year railroad embargos combined with the shortage of labor to still further delay shipments, but nevertheless brick manufacturers are optimistic and will not close down their plants unless it becomes absolutely necessary.

Examination for Laboratory Assistants in Ceramics

Announcement was made in the July 18 issue of "Brick and Clay Record" that the United States Civil Service Commission would hold an examination for an associate ceramic chemist on August 8. Since that time the commission has announced that on the following day (August 9) an examination will be held for laboratory assistants in ceramics. From this register eligibles will be appointed to fill vacancies in the laboratory of the Bureau of Standards at Pittsburgh. The salary ranges from $900 to $1,200 per annum.

This examination is held to secure eligibles having technical training in the subject of ceramics, comprising the technology of structural clay products, refractories and pottery.

Applicants must be graduates or senior students in a course of ceramic engineering or ceramics at a technical school or college of recognized standing. The announcement says that the names of senior students attaining eligibility in the examination will not be certified for appointment until they have furnished proof of actual graduation. The examination will include general physics, counting fifteen points; French or German counting ten; practical questions in ceramics, counting fifty, and education, training and experience, counting twenty-five points.

The Summer Meeting of the American Ceramic Society

will be held at St. Louis, Mo., August 23, 24 and 25. A detailed announcement of this gathering will be published in the

August 15 Issue of "Brick and Clay Record"

PRACTICAL METHODS *for* TESTING REFRACTORY FIRE BRICK

A Description of Standard Tests, the Making of Which Discloses Some Information Regarding His Product That Should be of Value to the Refractories Manufacturer

By C. E. Nesbitt and M. E. Bell

Read Before the American Society for Testing Materials at Atlantic City, N. J., June 27 to 30.

THE USE of refractory material in metallurgical operations is one which, as a rule, is given but very general consideration. The selection of a suitable refractory calls for a study, first, of the temperatures involved, and secondly, of the nature of the hot material and resulting slag to which the refractory will be exposed.

Refractories are generally used in form of brick or blocks which are molded from materials in the plastic condition, then burned. The resulting product is a solid of sufficient mechanical strength to permit its use for various forms of construction.

The two most common raw materials for making refractory brick are clay and a variety of silica called ganister. Other raw materials are gradually finding wider and more general use, but these two continue to be the important ones.

Clay and silica rock suitable for brick are widely distributed, but nature has very largely determined their physical properties. Each of these materials has varying physical properties which may be taken advantage of and incorporated into the finished brick, the quality of which is largely dependent on the methods employed in their manufacture.

BRICK SHOULD BE SELECTED ACCORDING TO USE

In its simplest terms a furnace or heating chamber consists essentially of a shell of brick work sometimes bound together with a suitable frame work of iron. Owing to various physical, chemical and mechanical operations which take place in the furnace, the refractory must meet certain demands to give a satisfactory life. No brick can be expected to be best in all physical properties, and it becomes necessary to select the brick which is best suited to withstand that particular condition imposed by the furnace. It may be that the brick will have to withstand the abrasive action of heavy, hard, materials, the sudden fluctuation of temperature, the corrosive action of slag, or the action of load while at high temperatures. These and similar points should be considered, their relative importance determined, and the brick chosen should be the one best suited to resist that particular condition.

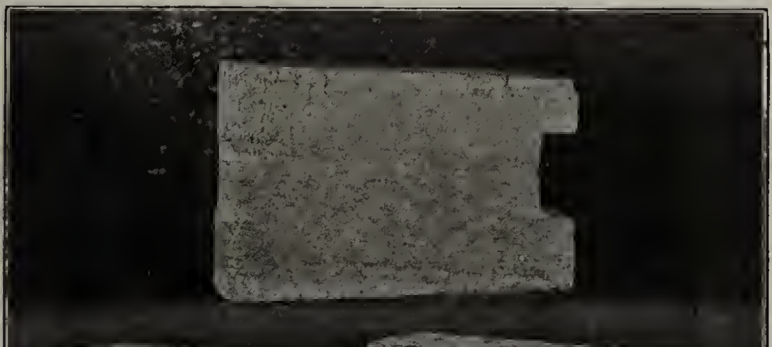


Fig. 1—Impact Tests, Illustrating Characteristic Features

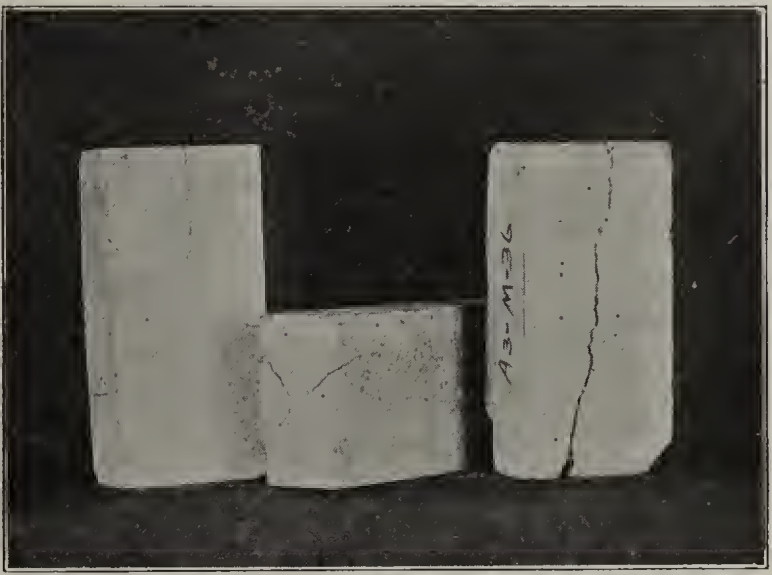


Fig. 2—Abrasion Tests, Showing Difference in Depths of Cuts in Upper Brick

In the iron and steel industry the blast furnace is one of the most important types of furnaces. In simple terms it is a hollow steel cylinder, approximately 100 feet high and some 28 to 30 feet in diameter, lined with fire-brick. In a furnace of 500-tons capacity about 1,900 tons of ore, limestone, and coke are used every 24 hours. These materials, often wet or frozen, are fed in at the top and fall on the materials already in the furnace or roll over against the walls. Since this material must pass slowly thru the furnace the wear of the lining is extremely heavy. The temperature at the top of a blast furnace is low, but as the charge descends the temperature increases until the fusion zone is reached. In this zone the hard material composing the charge becomes a pasty mass which ultimately is melted, and the brick work then has to withstand molten iron and slag rather than abrasion or impact.

CHARACTERISTICS FOR BRICK USED IN STOVES

No blast furnace is complete without its battery of stoves, in which no metallurgical operations take place. The object of the stove is to absorb heat rapidly and then as quickly give it up. Here a brick must withstand sudden thermal changes, abrasion, slagging, due to the dust carried by the burning gas, and possess good heat-absorbing qualities.

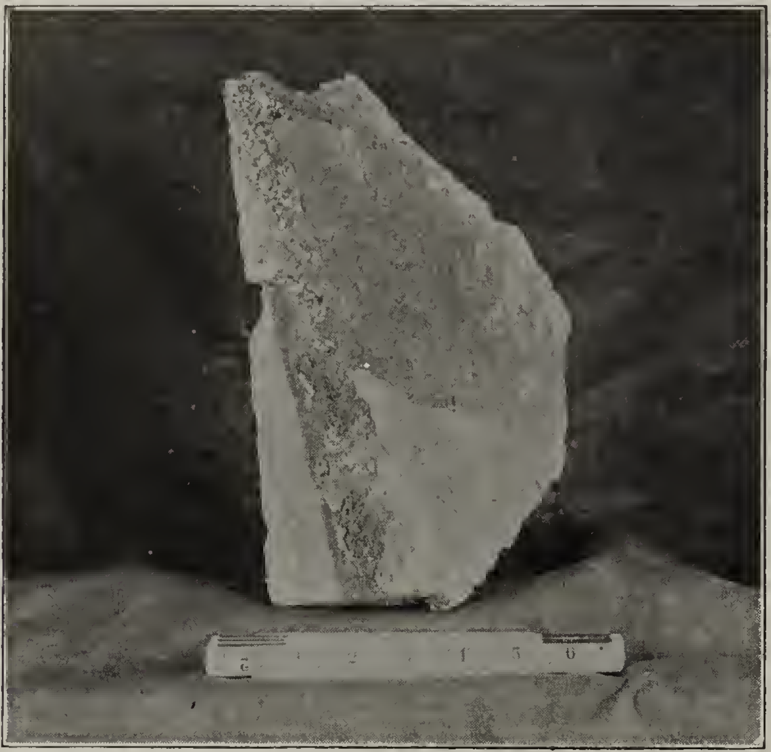


Fig. 3—Slag Penetration and Abrasion on Silica Brick—Portion of an Eighteen-Inch Bulkhead

In one of the processes of converting pig iron into steel a basic open-hearth furnace is used. This furnace is built up largely of silica brick, altho the hearth is made up of basic materials because of the basic character of the slag, while the regenerators are of fire-brick. Silica brick are very sensitive to thermal changes, but owing to their infusibility and their ability to withstand heavy loads when highly heated, they are used almost without exception in open-hearth practice. Any variation in manufacture of material which will tend to decrease their sensitiveness to heat changes, without sacrifice to their other good qualities, will directly increase the life of the furnace.

In soaking pits, heating furnaces, annealing furnaces, mixers, ladles, etc., the temperatures are not as high as in the open-hearth furnace; the brickwork here has mainly to withstand the action of the molten metal, iron scale, or slag.

A general review of the conditions imposed on fire-brick as used about iron and steel plants has pointed out two general conclusions: (1) the life of a furnace is determined by the life of its brickwork, and (2) different furnaces demand different physical properties in the brick used.

DESCRIPTION OF TESTS

A great many investigators have attacked the problem of refractories, the work having been done mainly from the standpoint of the inherent physical properties of the raw materials. The results are of high technical excellence and have been of value. In the majority of cases, however, the tests have not been applicable to brick as received by the consumer. He could not go out to his stock, select several brick and quickly determine their value for his particular purpose.

With this idea in mind each of the various conditions where fire-brick are used was studied to determine the cause of failure. The next step was to imitate actual conditions of service in the laboratory. This meant that tests must be employed which were very severe, producing in a short time what in actual service might require months or even years to accomplish. To test brick cold

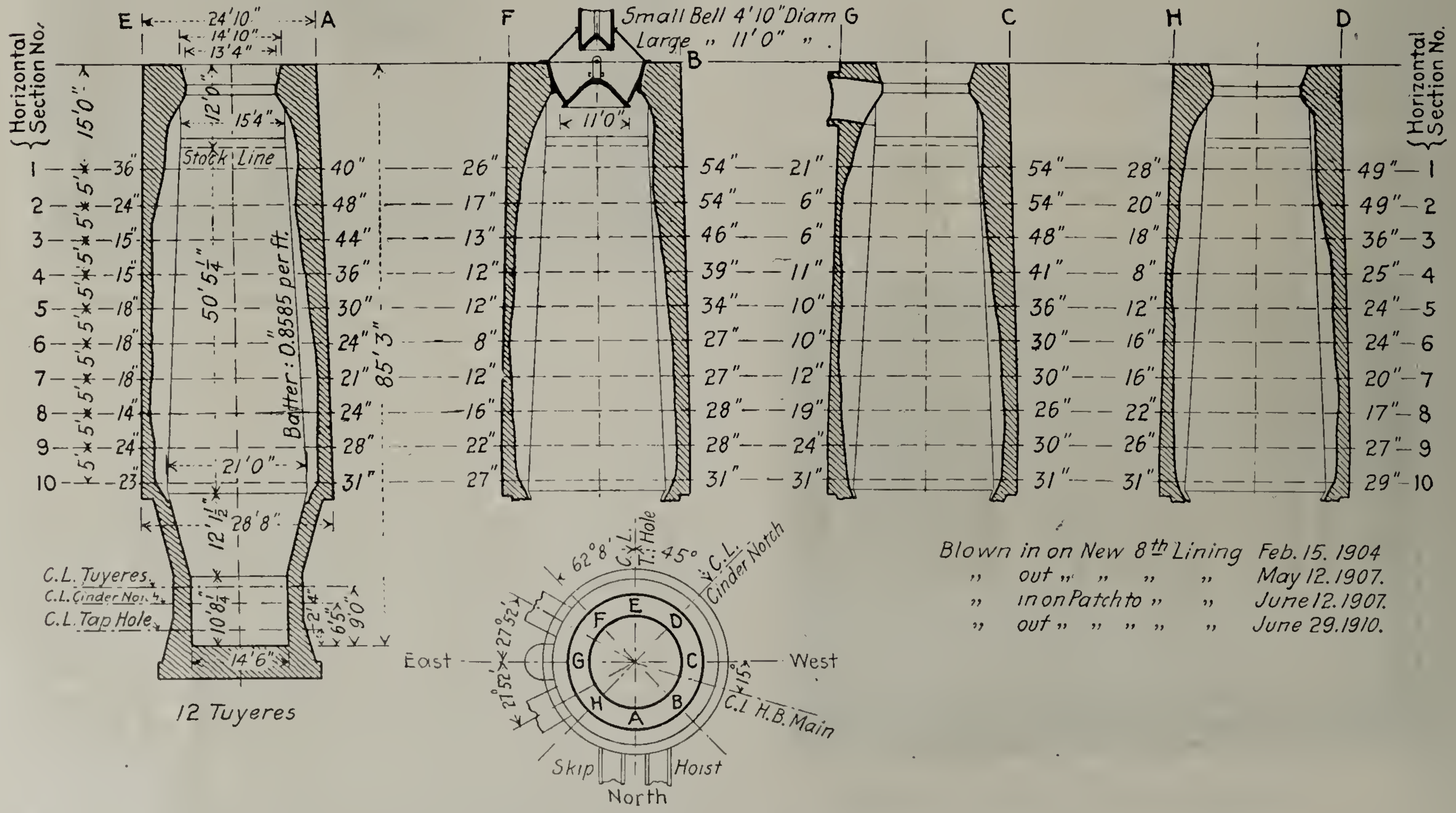


Fig. 4—Vertical Lines of Erosion on a Blast Furnace After Six Years' Service—Uniform Wearing

Note—The letters E, A, etc., represent vertical sections taken on the diameters shown in the plan; the figures 1, 2, 3, etc., shown at the left and right, designate the horizontal sections, which are shown in Fig. 5. The figures on the outside of the vertical sections represent the thickness of the brick lining remaining at these points.

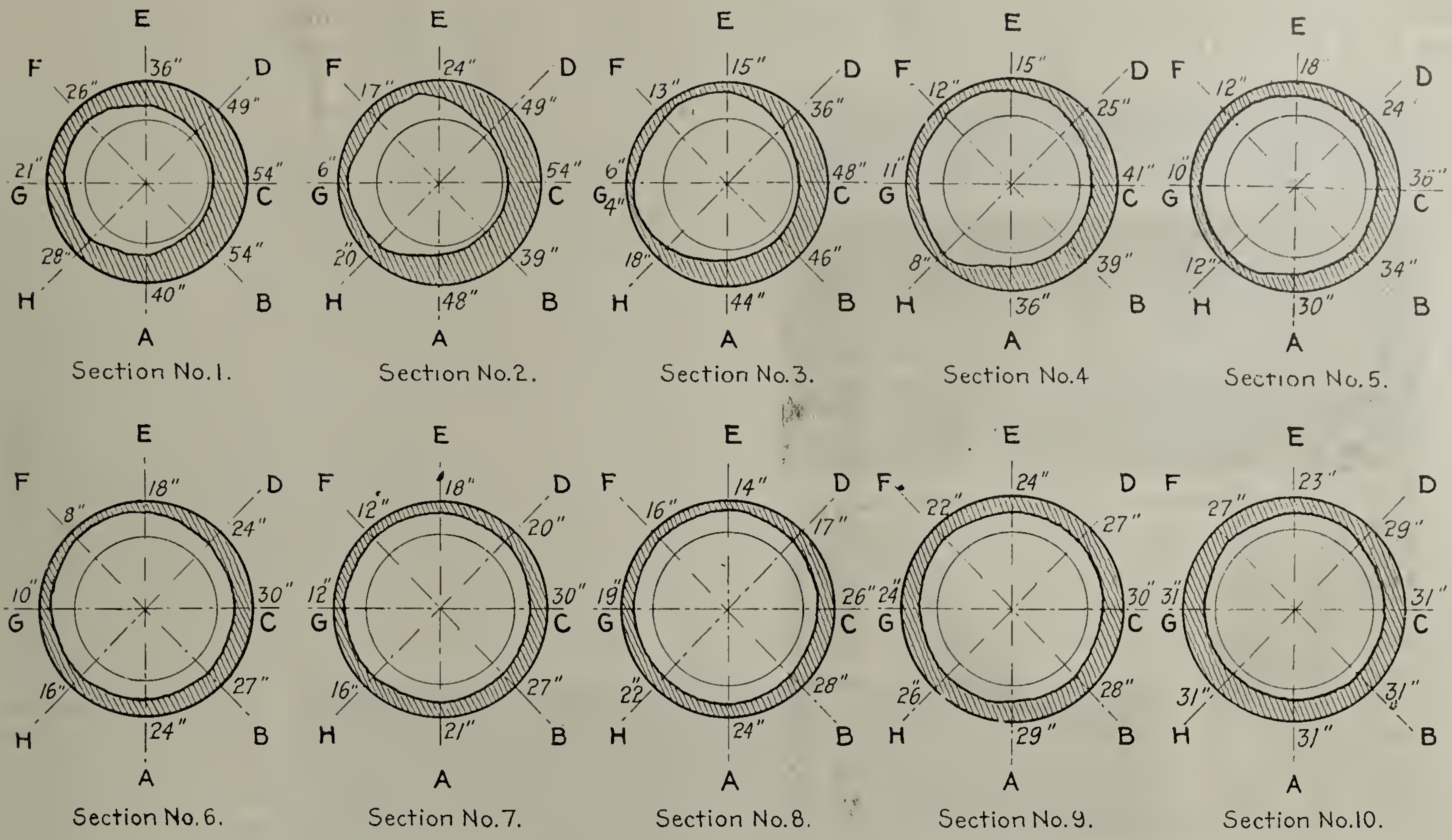


Fig. 5—Horizontal Lines of Erosion on a Blast Furnace After Six Years' Service—Uniform Wearing

Note—The letters at the ends of a diameter refer to the corresponding section indicated in the plan view of Fig. 4. The figures at the ends of a diameter indicate the thickness of the brick lining remaining at the ends of that diameter. For example: Horizontal section No. 1 shows thicknesses at the ends of the diameter EA equal to 36 and 40 in.; at the ends of the diameter FB, 26 and 54 in., etc. These figures will also be found along the horizontal line of section No. 1, in Fig. 4.

and say that the result of the cold test was a measure of the performance when hot, did not seem justifiable. Another point was to make the tests such that the work could be done on the brick as received, and not on brick prepared for the test.

In the study of service conditions, attention was first directed to the top of the blast furnace. The average temperature at the top is about 260° C. The charging of a furnace is a nearly continuous operation, the material charged falling on the large bell, which when lowered allows the material, often wet or frozen, to slide off the bell and strike the walls of the furnace. Immediately the charge starts slipping and grinding its way slowly downward past the brick in the wall. These conditions required tests that would imitate impact, abraison and spalling.

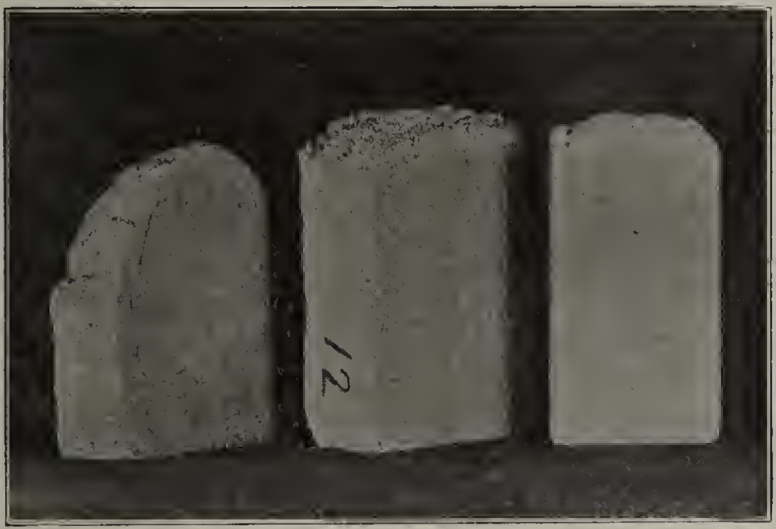


Fig. 6—Characteristic Spalling Test Specimens

IMPACT TEST

An impact test was first considered. The rattler and other similar tests were studied, but it was finally decided that some kind of a drop test would be the most practical, and would most nearly approach service conditions. After trying many shapes and sizes of falling weights it was finally decided to use a steel ball 2½ inches in diameter. The brick was heated to 260° C. and the ball allowed to drop on the end of the brick

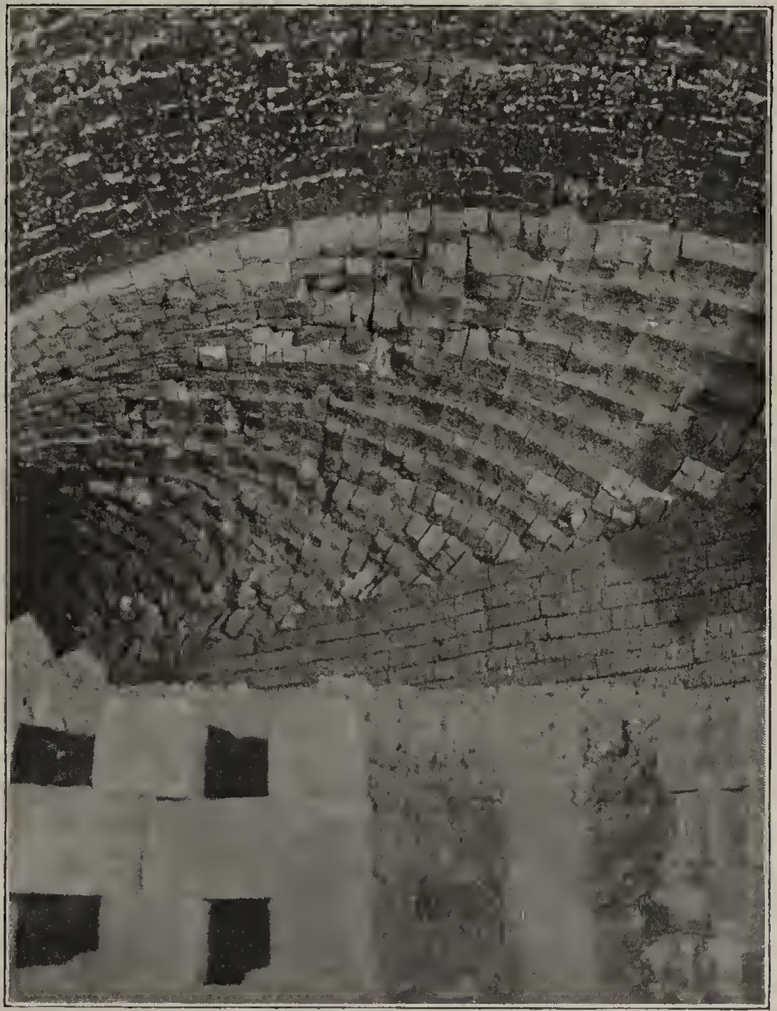


Fig. 7—Spalling in Roof of Air Flue of Open-Hearth Furnace

from a height of 2 inches, then 4 inches, and so on, until the brick broke. The height to which it was necessary to raise the ball to cause fracture of the brick represents a particular quality, namely, resistance to impact.

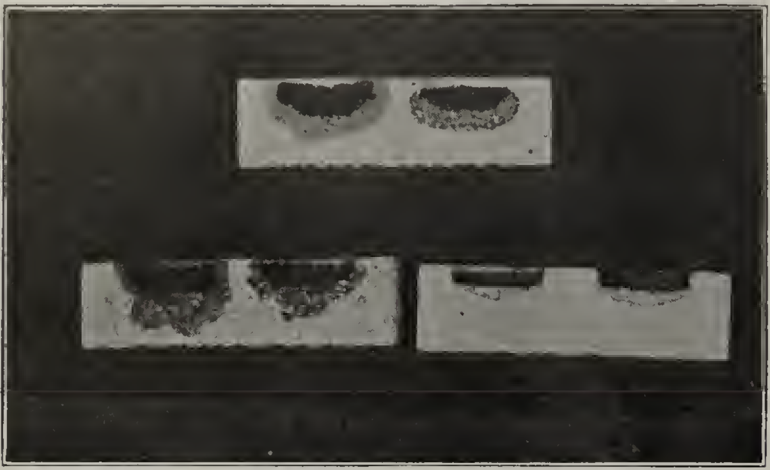


Fig. 8—Characteristic Slag-Test Specimens

The comparative strengths of brick to resist impact at ordinary temperatures and at slightly elevated temperatures is interesting. A brick heated to 260° C. and tested was 20 per cent. weaker than a brick of the same tested at 20° C., and 40 per cent. weaker when tested at 540° C. (Fig. 1).

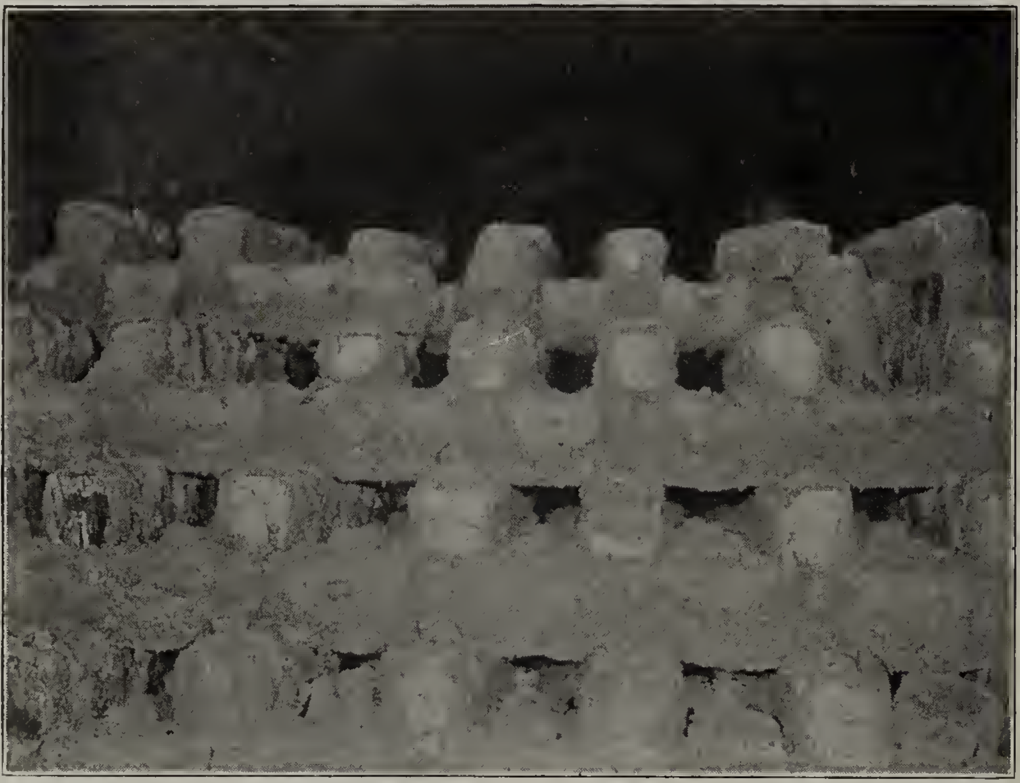


Fig. 9—Checkers in Gas Chamber of Open-Hearth Furnace, Showing Slagging

In developing an abrasion test it was found that others had abraded brick in the cold by means of an emery wheel. This idea was modified so as to test the brick while hot. A temperature of 260° C. was adopted for top-wall and pipe brick, and 1,350° C. for all others. The reason for choosing 1,350° C. for the high temperature was that (1) it is a comparatively easy temperature to reach with a test furnace, and (2) while it might not represent the highest temperature in the furnace, it is above the melting point of cast iron and is applicable to all high-temperature furnaces used about iron and steel plants.

The brick to be tested was heated to 1,350° C. and then pressed against a carborundum wheel, pressure and time being constant. When the brick became cold the depth of cut was measured and the result reported as linear inches abraded in 5 minutes. This test developed the interesting fact that brick are not always the same at both ends, for it was found that sometimes there may be 10 to 20 times as much abrasion at one end as the other (Figs. 2, 3, 4 and 5).

SPALLING TEST

Spalling was next studied. In brickwork such a condition is usually the result of thermal changes, often accelerated by mechanical pinching. In actual service only one surface, generally the end or side of the brick is exposed to the direct action of heat.

After trying various tests it was decided to place the brick to be tested in the wall of the furnace so that only one end was exposed. The testing temperature was 1,350° C., and after a series of experiments as to the most satisfactory time for heating, one hour was decided upon, with 25 minutes cooling in a blast of air. To produce a measurable spall at least 30 operations of heating and cooling were required. This was too long, and it was decided to increase the severity of the test by cooling in water for 3 minutes, and so hasten the spalling. A series of tests determined that cooling in water was 3 times as effective as air cooling. The number of operations was accordingly cut down to 10. The amount of spalling is reported as the percentage loss in weight. This test applies only to fire-brick (Figs. 6 and 7).

SLAGGING TEST

The failure of brickwork due to the corrosive action of slags is more prevalent than any other cause. Not only is the slag action marked in blast furnaces, but also in open hearths, cupolas, and heating furnaces, and to a lesser degree in mixers, ladles, fireboxes, etc.

During the development of a slag test the slag was first placed on the surface of the brick. It was next confined by the use of kaolin rings, but both tests were unsatisfactory. To confine a comparatively large portion of slag to any one portion of the brick it became necessary to drill a cavity in the brick and place the slag therein. Experiments were made to determine the effect of fineness of the slag, time of exposure to heat, and the effect of destroying the surface texture by drilling. To measure the slag penetration the brick is cut through the pockets of the slag and the area of brick penetrated by the slag measured with a planimeter (Figs. 8, 9 and 10).

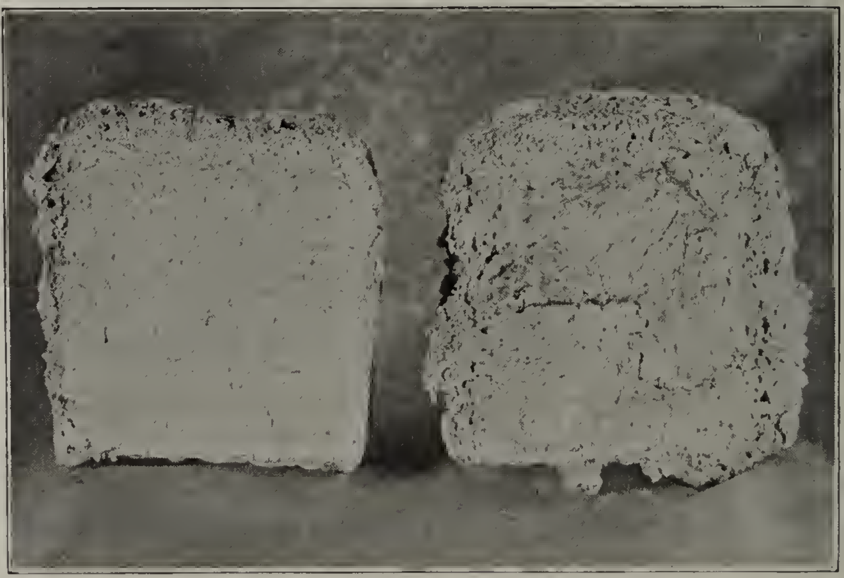


Fig. 10—Individual Checkers from Gas Chamber of Open-Hearth Furnace, Showing Slag Penetration

(The Second Half of This Paper Will Be Published in the August 15 Issue.)

COLLECTION RECORDS SIMPLIFIED

The Exposure of a Weakness in the Handling of Collections and the Outline of a Simple but Effective Plan for Keeping Accurate Records

By W. D. Parker

IT is so undoubtedly true that many slow accounts are actually lost thru inattention due, in large part, to cumbersome records that it is not necessary to dwell on this fact. The experience of every collection manager will verify this, but while some have profited by the knowledge, many have felt that a thoroly efficient system was too expensive for them to adopt, both in first cost and the expense of upkeep. This belief, however is far from the fact. It is the lack of such a system that is truly expensive. Even an energetic collection manager is apt to neglect giving his slow accounts the proper attention if it is necessary to go thru the ledger to ascertain the exact status of each one, and even in a small business, memory is a very uncertain substitute for handy records.

SYSTEM SHOULD BE AUTOMATIC

If Mr. Debtor's account is overdue this should automatically come to the attention of the manager at brief and regular periods, also if Mr. Debtor promises a payment at a certain date the promise should be remembered at the right time. Experience has proved that no ledger system, either old style, loose leaf or card, will produce these results except at a time cost so great that few men can spare it. The right method is to keep a separate card record of all accounts that are past due, and to keep the record partially in duplicate. That is, there should be an alphabetical card record, giving all the ledger data as well as notations of promises to pay in the future, and there should also be a chronological card record which will call the attention of the collection manager to each of these accounts at the right time.

CIGAR BOX AND CARDS SUFFICIENT EQUIPMENT

At first thought it might seem that such a system would be still more cumbersome as well as too expensive, but this idea is based on the supposed necessity of installing regular card filing cases, ordering specially printed cards, and overlooking the slight amount of time actually required to keep such a record, as well as the time saved in having the data wanted in handy form to get at. While a regular filing equipment, including specially printed and ruled cards, is a fine thing to have, yet it is quite possible to get the same results with a couple of cigar boxes and cards cut from odd stock that can be found at any printer's. It is thus possible for the smallest business to make use of the most efficient business methods without the usual cost.

The important point is to have the method of keeping the records as nearly automatic as possible. When the monthly statements are made out each overdue account should be entered on the duplicate card system mentioned. The form of entry in the next column will be found very convenient.

This card shows at a glance a past due balance of $251.10, and a promise to pay February 20. It is a handy record to refer to in case more credit is requested before settlement is made and no printed card or special ruling is required in order to carry out the idea.

SIMPLE FORM FOR ALPHABETICAL CARD

Mr. Slow Pay,
Chicago, Ill.

Charges			*Payments*	
1/1	$160.80		1/5	$100.00
1/7	240.30	2/5 *Promised to pay balance* 2/20	1/15	50.00

At the same time this card is made out another one should be filed in the chronological file to come up February 20 with simply the name of the debtor on it, so that attention will be called to this account at exactly the right time. In the case of past due accounts where no promises have been made the card should come up weekly until some definite arrangement has been secured. Where a filing clerk is employed it should be his duty to bring these cards to the collection manager daily, with the morning mail.

SOME MANAGERS PREFER CLIP SYSTEM

In the absence of a regular clerk it should be made a matter of the first importance for the collection manager to take up the cards daily as well as to attend personally to the making of the proper notations and the proper filing. The time required is so little that it is merely a question of getting into the habit. There is another way of handling that some managers prefer when taking personal charge of the collection files, and this is what is known as the signal system. Various colored clips are used, each color representing a different day in the week. Where this system is used a chronological file is not required as the clips are placed on the cards in the alphabetical file with a different colored clip to indicate the particular week in the month that the clip refers to. This method does not appeal to the writer as being nearly as simple and effective as the chronological file, but it is certainly better than making no effort at all to bring accounts up for attention at the proper date.

METHOD FOLLOWED IN A LARGE BUSINESS HOUSE

In a large business house where the writer was at one time employed as credit man, the method of making the proper notations on the cards and keeping them up to date was as follows: When the mail came in it was opened by the office boy at a table next to the bookkeeper's desk. Any mail containing remittances was handed to the bookkeeper, who made the proper entry in the ledger and then sent the letters on to the credit man, who could make the proper entries on his alphabetical card files, answer any part of the letter that pertained to his department, and pass it on to the salesmanager. The mail not containing remittances followed the same route, except that it did not require the attention of the bookkeeper.

In this connection there is another point worth at least passing attention, and that is one of two rules should be made and rigidly adhered to. Either only the collection manager and the filing clerk should be allowed access to the cards at all, or if others are allowed to look them over, they should not be allowed to take them from the box. Many persons, especially the younger clerks, are often careless as to the proper return of filing cards to the files and carelessness of this kind is liable at any time to prove exceedingly costly.

* * *

New York Builders Hurry to File Huge Volume of Plans Ahead of New Building Law

There was a lively rush in New York City on July 25 to file plans for new office buildings, lofts and apartment houses. The total value of the filings for the day will exceed ten millions of dollars. The commercial buildings, for which plans were filed, include sixteen, eighteen and twenty-story structures, there being three of the first mentioned class and one each of the other two. Not in many months have so many plans for costly structures been filed. The rush began on Thursday, July 20 and, including the twenty-fifth, the total cost of the proposed buildings for Manhattan exceeds $16,000,000.

The reason for this unusual boom is to be found in the fact that on the twenty-fifth the Board of Estimates held what is expected to be the final hearing on the last report and recommendations of the Commission on Building Districts and Restrictions. Many builders and owners, who have opposed the proposition to place reasonable restrictions on buildings in certain localities, feared that the report of the commission would soon be adopted by the Board of Estimates and decided not to take chances, hence the filings.

In many cases, according to some architects, work would not be started at once. In the opinion of some realty brokers, a portion of the projected structures may never be erected.

Among the plans filed on July 25, the largest individual operation was for a twelve-story apartment house to cover the entire block surrounded by Park and Lexington avenues, Forty-eighth and Forty-ninth streets, to cost $2,500,000. Should this building be erected, it will be the largest apartment house in New York City.

Over Four Thousand Vehicles a Day Traffic on Brick Pavement in New York

A census taken over a seven-day period, from May 22 to 29, at the two driveways to the Pennsylvania Railroad terminal in New York City shows that an average of 4,492 vehicles a day pass over the pavement at the Thirty-third street entrance and 3,384 over that at the Thirty-first street entrance. The pavement was laid in 1910, and at the present time shows very little effect of wear.

The observations were taken under the direction of D. O. McComb for the Dunn Wire-Cut Lug Brick Company of Conneaut, Ohio, and were continuous thruout the period between midnight May 22 and midnight May 29.

Attention was paid to the possible effect of special events on the accuracy of the traffic count as a true daily average. It was found, however, that in a city the size of New York the special event is the rule rather than the exception, and has much less effect on a traffic census of the kind than would be the case in a smaller city.

A feature of the census was the large proportion of taxicabs using the pavements. At Thirty-third street seventy-five per cent. of the vehicles were taxicabs.

All kinds of motor traffic spread out evenly over the driveways, while horse-drawn traffic kept close to the sides. The effect of the latter on the surface is noticeable at the curb, where a groove from 3/8 to 1/2 inch deep and about 2 1/2 inches wide is worn into the pavement, caused by the locked wheels of the wagons going down the incline.

The traffic on the Thirty-first street side is more diverse in character than that entering the Thirty-third street entrance, the latter being principally taxicabs and the former carrying all the incoming baggage, express and only a small proportion of the passenger traffic.

In one three-hour period, on May 27, a total of 501 taxicabs entered the station—an average of 167 an hour. The average number of taxicabs a day reached 886, each passing twice over the pavement.

The count was taken of the vehicles going in. As these had to pass over the same road going out, the number was doubled to obtain the actual vehicular traffic passing over the roadway. The total daily vehicular traffic at the Thirty-first street entrance was 3,384 and that at the Thirty-third street entrance 4,492. The traffic at the Thirty-first street entrance was constituted as follows: Forty-two rubber-tired carriages, 16 rubber-tired wagons, 700 steel-tired wagons, 1,772 taxicabs, 617 automobiles and 236 motor trucks. That at Thirty-third street was made up of 51 rubber-tired carriages 417 steel-tired wagons, 3,391 taxicabs, 496 automobiles and 135 motor trucks.

The pavement was laid in 1910, the brick being bedded in cement mortar mixed 1:3. They are of fire-clay made at Clearfield, Pa. On the inclines they are 7 1/4 x 2 1/4 and 2 3/8 inch, with beveled edges and no lugs. They were carefully laid and separated so that the mortar or grout could readily be placed in the joints.—*Engineering Record.*

A Good Year for Brick Roads in Ohio

James R. Marker, engineer of the Ohio Paving Brick Manufacturers' Association, is very enthusiastic over the prospects for brick paving in the Buckeye state during the present season. He says that there is between thirty and fifty per cent. increase in the volume of brick paving in the state over last year. This is largely on country roads, where brick is coming more and more into general use. Nearly everyone interested in good roads now feels that for high-class rural highways, brick is the only material to be used. Mr. Marker says that lack of finances in the various municipalities is hampering brick paving, but a number of Ohio cities have circumvented the difficulty by floating bond issues. That is especially true of Springfield, Dayton, Cincinnati and Lima. In Springfield alone, more than $400,000 will be spent on paving work, a large part of which will be of brick. In Lima, more than $200,000 will be spent. The work of the association is to give expert engineering service and, in fact, all kinds of advice to municipalities and civic organizations in securing road and street improvement.

Hollow Building Tile Makers Discuss Advertising

Advertising, its value to the business, and plans for its application are being considered by the Denison Interlocking Tile Corporation, Cleveland, Ohio. The first steps in this direction were taken at the executive meeting of the company held on July 24 in its offices in the Hippodrome Building. Members who gave voice to their views on the subject were B. J. Mitchell, Niagara Falls, N. Y.; H. H. Titsworth, Indianapolis, Ind., and Bert J. Graham, general manager, Cleveland. Robert Gamble, Jacksonville, Fla., also a member of the executive board, was unable to be present.

Valuable information on advertising was had from J. H. Payne, Dallas, Texas, secretary and treasurer of the Fraser Brick Company. Mr. Payne has had a long connection with the advertising and sales department of the Sherwin-Williams Company, Cleveland, and will supervise the advertising policies of the Denison Interlocking Tile Corporation for the coming year.

The campaign, from present indications, will be nationwide in its scope, involving an expenditure of perhaps $75,000. The creation of a greater demand for hollow clay building tile also is urged by W. J. Burke, vice-president of the American Clay Products Company, New York City, in that metropolis, New York state and New England territory.

In extending its operations, the Denison Interlocking Tile Corporation also is considering the advisability of establishing agencies.

Following the executive meeting the visitors attended the semi-annual meeting of the Hollow Tile Manufacturers' Association at Cedar Point, where twenty-six factories of the corporation were represented.

The Interstate Clay Products Company, subsidiary of the Denison Interlocking Tile Corporation, has opened offices in Pittsburgh, which will be under the direction of C. V. Coffland; in Columbus, where A. A. Comey is in charge; in St. Louis, with H. C. Kennedy in charge, and in Richmond, where J. J. Cantwell and A. G. Bohn are the managers. Plans also are being made to establish offices in Detroit and Cincinnati.

TIME *and* FIRE FAIL *to* LEVEL OLD BRICK STACK

THE TEST OF TIME—the crucial one for building materials—has been passed successfully by a large brick stack in Bay City, Mich., a picture of which is shown in the accompanying illustration.

The building shown was formerly the power plant of an old lumber saw mill, known locally as the Sage Mill, built more than fifty years ago. The remaining buildings of this plant, with the exception of a small office, were of wooden construction. As if to demonstrate to the builders the transient nature of their work and the everlasting qualities of burned clay materials, a fire swept the plant about thirty-five years ago, destroying all but the two brick structures and the stack.

The Sage Mill in 1875 was one of the largest saw mills in the country. Steamers and barges were tied up two and three deep along the dock waiting their turn to be loaded with pine lumber to be delivered to Buffalo and other eastern ports. Tugs crowded their way into the boom with monstrous cork pine logs to be ripped into lumber by twelve saws operating day and night. Rows of houses stood a little distance down the river from the mill, housing its thousands of employes.

But today, trees and grass are growing on the site of the old Sage Mill and boys with air guns hunt rabbits where lumber piles once stood. In the midst of this desolation the old brick stack looms out like a monument, and anyone who has visited Bay City could not help but be impressed with its massiveness and durability. The stack is located directly opposite the new Wenonah Park on the east bank of the Saginaw river, and is in plain view from the downtown section on both sides of the river.

The slight irregularity at the top of the stack, shown in the illustration, is not the result of brick falling away, caused by the ravages of time, but was made by adventurous youths who have climbed up the iron ladder in the center of the stack and have thrown brick down from the top.

The stack is 142 feet high, measuring twelve feet square at the base and eight feet square at the top. In shape it somewhat resembles the Washington monument. The foundation consists of piles driven solidly into the ground, with not an ounce of iron, steel or concrete to strengthen it.

The boiler house, itself, which is also built of brick, is now occupied by a boat building company. It measures sixty by eighty-five feet and is forty-five feet high. The interesting part of this structure is that there are no pillars or posts supporting the roof. Iron girders, thirty-five feet from the ground, extend from wall to wall, supporting the heavy slate roof. Under present methods of construction, using a steel frame work, this building would have been a simple matter of construction, but when it was erected in 1853, structural iron workers and the steel skeleton were things of the future. The brick walls were built strongly enough to hold the roof. There are no signs of sagging anywhere, nor do the walls show the effects of time to any noticeable extent, in spite of the fact that they passed thru a scorching conflagration when the wooden buildings of the former saw mill burned to the ground.

In the Midst of Desolation Wrought by Fire and Decay, the Old Brick Stack, Formerly a Part of the Sage Mill, Bay City, Mich., Looms Out Like a Monument

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

HOW CINCINNATI DEALERS
CHANGED THE "I" TO "WE"
IN SELLING BRICK

SELLING FACE-BRICK, as a retailing enterprise entirely separate from the business of manufacturing brick, is one of the youngest occupations in the marketing of building materials; and this undoubtedly accounts for the fact that, in some respects, selling and organization work among members of this branch of the brick business has not always kept abreast of similar work in other lines. Nearly everyone now engaged in this business can remember the time when brick and other building materials, when sold at all by persons other than manufacturers, were handled as unimportant side-lines, usually by a lumber dealer.

"EVERY MAN FOR HIMSELF" EARLY SLOGAN

When, a few years ago, conditions began to be otherwise, and exclusive brick dealers sprang up to sell to the consumer the rapidly increasing variety of high-grade face-brick turned out, there was naturally a good deal to be done in the way of getting the new business going. Each man who acquired the representation of a few lines blazed the way for himself, as it were, and felt that every other man's hand was against him, especially when he ran into another chap who was trying to sell face-brick in the same locality, or even on the same job.

This feeling, which is still to be found in some quarters, was not and is not calculated to advance the business, nor is it helpful to mutual confidence and good feeling among dealers. It led to various evils which have plagued other trades, and which never seem to be eliminated. The kind of competition generally known as "cut-throat" is one of the worst of these, whether it arises of itself, and out of the desire of competitors to keep the other fellow from getting any business, or whether it is carefully and skillfully cultivated by the buyers who profit by it. In any case, good feeling would prevent it, and would thereby prove the forerunner of good business.

CINCINNATI DEALERS TAKE STOCK OF SITUATION

This was the conclusion reached about two years ago by several brick dealers in Cincinnati, who had experienced all the troubles which grow out of bitter competition and mutual distrust and suspicion. They had all been the victims of the resulting situation, and had found no nourishment in it. Buyers, however, had found it an easy matter to play one dealer against the other, thereby getting prices at figures which left the seller no profit. This is a condition known in every town where the retail section of the trade has not yet worked up to a point of business efficiency represented best by the simple fact of organization.

"There was a time in this town," said one of the members of the Cincinnati dealers' organization recently, "when a buyer who knew what he was about could get almost any price he wanted on a lot of brick. He would come to us, for instance, and ask our price on a certain grade of brick. We would make it—with mental reservations. He would come back at us with the statement that another concern could make a much lower figure, and had done so; and then, instead of inquiring directly of that other concern about the matter, we would fall for it, and cut our price. Whereupon the 'slick' one would go to some other dealer, quote our price, and if possible get one still lower.

CONDITIONS FINALLY REACHED THE LIMIT

"Of course, this sort of thing got worse and worse, the further it went, as things like that always do. It got to a point where salesmen and members of concerns selling brick were almost afraid to speak to each other on the street for fear of letting something drop that would help the other fellow. Our opinions of each other, moreover, were not flattering, because naturally everybody knew there was price-cutting going on right and left, and everybody blamed everybody else. And there we were."

It must not be gathered, however, from these perfectly good-humored and reasonably accurate remarks of a member of the trade, that the brick dealers of Cincinnati were the abandoned reprobates they had begun to think the other fellow was. In fact, they did not think anything of the sort of each other except in the heat of competition of the sort referred to. They knew that the men in the business in the city were fine and upright business men, of high quality and ability in every respect; and that was the principal reason why they ultimately decided that it was time to get together and apply some common sense to their relations with each other.

BRICK CLUB RESULT OF GET-TOGETHER MOVEMENT

The Cincinnati Brick Club, now a thriving organization, was the result. The same five concerns, which formed its original membership, still make up the club, these being the Moores-Coney Company, Pursell-Grand Company, Cincinnati Clay Products and Supply Company, Brick Sales Company and the L. H. McCammon Brothers Company. This list comprises a substantial majority of the leading brick and material concerns of Cincinnati, and it is safe to say that the organization has done more during the brief period of two years to put the brick business on a higher plane in that city, than had been done in all the time before. In fact, in the past the effort had been rather in the other direction, while since the organization of the club the work of the members has been directed toward the commendable object of doing business in a business-like manner.

This, of course, does not mean that competition has been eliminated. Every architect in Cincinnati knows that he can get the warmest kind of competition whenever he follows the honored injunction to "build with brick." But the art of the "shopper" is now entirely useless. The open price, which means a single price, quoted freely to anybody who wants to know it, has prevailed practically ever since the club was organized, and when once a Cincinnati dealer has fixed his figure on a given grade of brick, that figure stays put. Competition now is on a fair and above-board basis of salesmanship, quality, and the fitness of the material for the particular job in hand; and this has served to develop selling work among the retail dealers to a marked extent.

John M. Stoner, president of the Cincinnati Clay Products and Supply Company, was the first leader, being succeeded by Walter Pursell of the Pursell-Grand Company, who is now the club president. Meetings were at first held weekly, at the lunch hour, in pursuance of the first object of the members, which was to learn to know each other better, thereby doing away with the atmosphere of distrust which had gathered whenever a pair of brick men met. Meeting in this way frequently, the members soon found what they had really known all along—that the other fellow was a business man and a gentleman, and not any of the things which the dealers had once felt moved to call each other. For some time meetings have been held semi-monthly, keeping the members closely in touch with each other.

CLUB MAY WELL BE TERMED SUCCESSFUL

It can safely be said that the objects for which the club was organized have been fully attained, as may be gathered from what has already been set forth. Conditions in the face-brick trade in Cincinnati have been greatly improved, from every standpoint, and the trade itself has been raised to a higher plane than would have been believed possible a few years ago. Architects and contractors, who are in a position to judge, are among the most enthusiastic over the results which the club has accomplished. The increased use of the products handled by the members of the organization is one of the proofs of its success.

The river outing given last summer to the local architects, contractors and other interested in building was a sort of a demonstration by the club of its unity and strength, on the one hand, and served on the part of those attending as a testimonial of their regard for the brick dealers. Similar outings will probably be given in the future, serving to keep the other interests in the building trade aware of the continued energy and usefulness of this organization of brick men.

Another interesting piece of work performed by the club a few months ago consisted in giving the "Build with Brick" campaign a "boost" in the vicinity of Cincinnati by posting signs bearing the slogan. A score or more of automobiles belonging to members covered the territory around Cincinnati for miles, and when the day's work was done, brick was pretty thoroly advertised around that vicinity, and has since been so, as far as signs will do it.

Emphasizing, as they do, the importance of such factors as service and reliability in the brick business, as in other lines of work, members of the Cincinnati Brick Club have not sought representation of brick manufacturers not known to be in every way up to these standards. By forming connections only with brickmakers of the kind who know how to handle business, the retailers have been able to assure their customers of prompt deliveries of material ordered, in quantities as desired, and in quality fully up to the specimens submitted. It is easy to see that this is of material assistance in helping along the popularity of brick, especially with the architects and contractors, who are held responsible by the owner for the delays and inconveniences caused by trouble with material.

FULL AND FREE DISCUSSION AT MEETINGS

One of the best things about the organization, and one of those showing the striking difference between the present attitude of its members toward one another and that which used to prevail between Cincinnati brick men, is the full and free discussion of business conditions which is the rule at meetings. If a member has "made a break" in the matter of selling or advertising which does not meet with the approval of his fellow-members, they do not hesitate to tell him about it; and it is this mutual criticism, attended and impelled by a general determination to keep standards in the brick trade at a high level as far as the club is concerned, that has helped to make conditions as good as they are.

In connection with the open price rule which now prevails in Cincinnati, President Walter Pursell is authority for the statement that the club is contemplating the issue of a joint price-list in pamphlet form, in which all grades and varieties of brick handled by the several members will be quoted. This would be a step directly in line with the work and policy of the club ever since its organization, and one calculated to increase, if possible, the confidence which its members have earned among buyers of brick in Cincinnati.

SPICY SUGGESTIONS *for the* SALESMANAGER

Not long ago, when a small Middle West city set about paving some of its streets with brick, sales representatives of numerous companies went after the business. They sent samples of their product to the office of the mayor. These arrived in such numbers that the editor of the local paper began to make fun about them. He suggested that they be used in building an addition to the city hall, or that they be retained and one of the streets be paved with the collection, thus saving the city a considerable amount of money. This, of course, was his idea of being funny. As a matter of fact, sampling was much overdone on this job and the cost was greater than it should have been.

Probably there is no effective way to avoid sending samples, but there are ways in which the brickmaker can keep the samples working in his interest. Most of the architect's offices are cluttered up with more or less unsightly piles of brick in corners, or there are shelves of them packed away, invariably so badly mixed up that the desired brick cannot be found when it is wanted. The result is that the dealer or manufacturer is frequently called upon by the builder to hustle a boy over with such and such a brick, which, when shown to the average layman, at best, means little. In the aggregate, the cost of the samples, tho considerable, may not be worth worrying over, altho the whole cost of keeping the builder stocked is some item. But the worst feature is when the sample does not keep on working for the house which supplied it.

One retailer who has earned the good will and confidence of builders meets this problem from time to time during his calls by making an inventory of his brick which the builder has on hand. When he has that much liberty in the friend's office he overhauls the list of samples, makes sure that his "card" is pasted on them and then assembles them where they can be easily found when really wanted. In this way he is doing the architect a service and at the same time insuring that his brick will get the best chance of doing him some real good. The average clutter of samples, however, fails to accomplish that purpose.

"Getting In" With the Buyers

There is often more importance attached to an alleged "stand-in" with the contractors and architects who have it in their power to select the brick or other material to go into a building than the situation deserves. Once upon a time, perhaps, the buyers favored their friends first of all with little regard to price, but as a rule the personal relationship works both ways. The buyer has just as much reason to expect the brick salesman to make him a price as the salesman has to expect his friend, the buyer, to take his goods whatever the price. On small business the stand-in may control the order, but on big business price and quality as ever are the determining factors. It is more desirable that the brick salesman have a large acquaintance among those who probably will buy his wares than that he have a select circle of buyers with whom he thinks he is particularly "strong." And the chances are he will find that the large circle of friends will influence business in his favor to a greater extent than the select few. The thing to do then is to make friends.

One good way to form friendships is to do your playing where these prospective friends play. More than one salesman, brick, paper or what not, has found golf an excellent way to "get next" to men who later proved to be good customers of the house that the salesman represents. On the golf links, on the beach, on the tennis courts, in the grandstand at the baseball park, in the gymnasiums you meet a man with his collar off. You get acquainted with him and take his measure. If you are a good fellow you gain his confidence and, after that, the way to the business he is in position to deliver, is straight and there are no bars to take down, provided you can deliver the goods he wants. Or you will have a much better opportunity to talk him into liking the goods you have to sell than if you met him on a strictly business footing.

This plan of making the social contribute to the commercial is not new, it is true. However, it is well to keep in mind that a social friendship will not do much more than insure the salesman a favorable hearing. But that is something very well worth taking elaborate pains to get.

Defend the Good Name of Brick

Every now and then a business man picks up his newspaper and reads where some thoughtless editorial writer or reporter has handed his particular product a "raw deal." It may be a "knock" on the material itself, or on the service, or on the manner of its handling, or alleged excessively high cost. The dealer and manufacturer in brick or other clay products gets his share of this kind of treatment.

There is, of course, something in the contention that it is not often worth while to insist on a correction of an unfair statement, since the correction merely calls more attention to the "knock." That might be all right if there was any assurance that one "knock" would be the last, but the demand or the request for a correction will often serve to head off any repetition of the damaging statements.

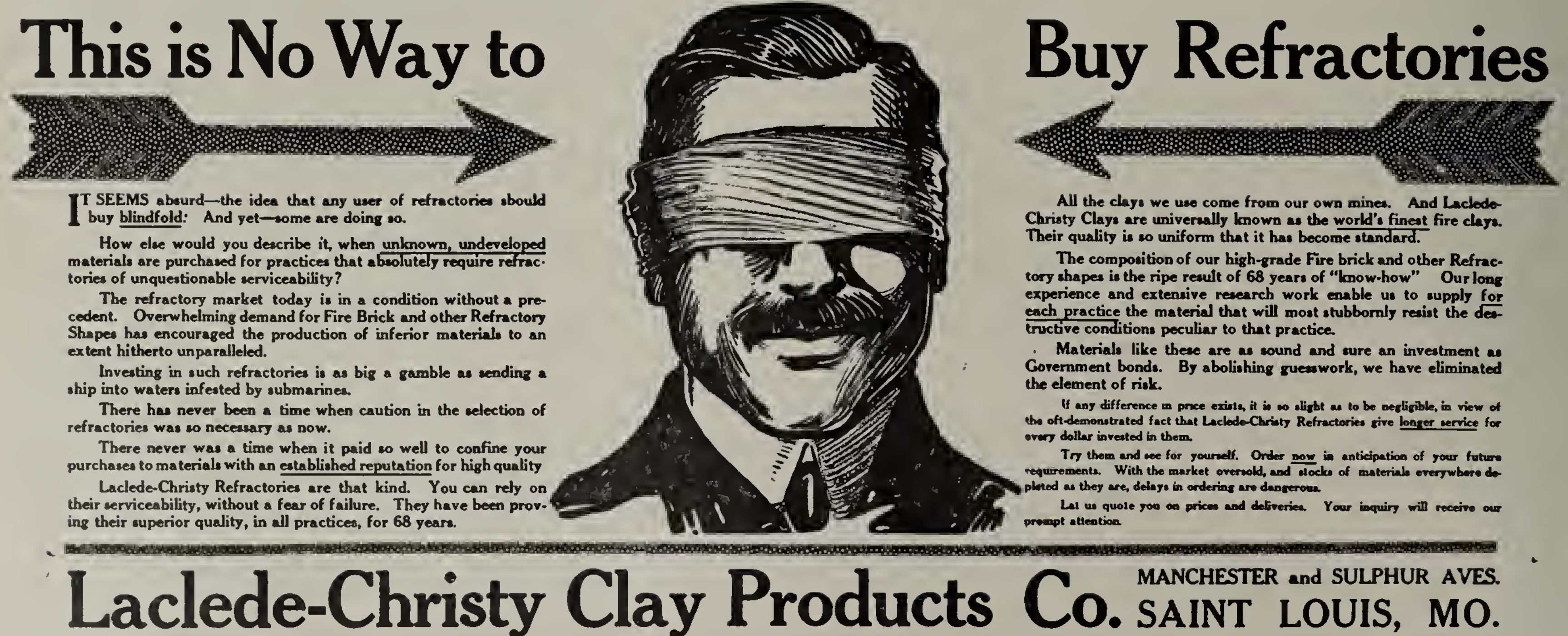
An instance to illustrate the point occurs to the writer. It relates to a brick pavement which developed numerous holes. The demand for repaving the street was supported by a leading paper in the community which objected to brick, saying that "failure of the brick pavement in this instance is enough to settle that point and put the question mark on all brick paving." This was, of course, a particularly unjust reflection on brick, and damaging in a town which was planning a large amount of new paving.

The representative of a leading paving-brick company singlehanded took up the challenge and wrote a letter to the editor of the paper. He called attention to the paper's "unfair and damaging" statement and asked that his letter be given space on the editorial page. The letter defended the paving material convincingly, and pointed out that it was not the brick, but the foundation which was defective. As sections of the foundation dropped down and the brick settled, this exposed the corners of the brick which crumbled under the heavy traffic. Where the foundation had remained firm the brick surface was still good. The paper published the letter. It had intended no unjust criticism in the first place, and brick as a paving material thereafter had an independent, educated defender.

Similar opportunities to defend brick will come now and then to others in the business. They should be taken advantage of. They may not lead to immediate sales but they will help to retain for brick the prestige it deserves in the public mind.

* * *

George Herboth, manager of the brick yard at Uniontown, Wash., is about to close the plant for the season, having produced a large surplus stock of brick and tile which will be sufficient for the market's demands during the remainder of the year and well into the spring of 1917. The plant turned out more ware this season than ever before.



This is No Way to Buy Refractories

IT SEEMS absurd—the idea that any user of refractories should buy blindfold: And yet—some are doing so.

How else would you describe it, when unknown, undeveloped materials are purchased for practices that absolutely require refractories of unquestionable serviceability?

The refractory market today is in a condition without a precedent. Overwhelming demand for Fire Brick and other Refractory Shapes has encouraged the production of inferior materials to an extent hitherto unparalleled.

Investing in such refractories is as big a gamble as sending a ship into waters infested by submarines.

There has never been a time when caution in the selection of refractories was so necessary as now.

There never was a time when it paid so well to confine your purchases to materials with an established reputation for high quality

Laclede-Christy Refractories are that kind. You can rely on their serviceability, without a fear of failure. They have been proving their superior quality, in all practices, for 68 years.

All the clays we use come from our own mines. And Laclede-Christy Clays are universally known as the world's finest fire clays. Their quality is so uniform that it has become standard.

The composition of our high-grade Fire brick and other Refractory shapes is the ripe result of 68 years of "know-how" Our long experience and extensive research work enable us to supply for each practice the material that will most stubbornly resist the destructive conditions peculiar to that practice.

Materials like these are as sound and sure an investment as Government bonds. By abolishing guesswork, we have eliminated the element of risk.

If any difference in price exists, it is so slight as to be negligible, in view of the oft-demonstrated fact that Laclede-Christy Refractories give longer service for every dollar invested in them.

Try them and see for yourself. Order now in anticipation of your future requirements. With the market oversold, and stocks of materials everywhere depleted as they are, delays in ordering are dangerous.

Let us quote you on prices and deliveries. Your inquiry will receive our prompt attention.

Laclede-Christy Clay Products Co. MANCHESTER and SULPHUR AVES. SAINT LOUIS, MO.

One of the Many Snappy Folders That the Laclede-Christy Company Has Gotten Out Recently to Impress Its Customers, Both Present and Prospective, with Certain Arguments Favorable to Its Products. The Particular Piece of Advertising Matter That Is Shown in the Above Illustration Hammers Hard on the Fact That to Buy Strange and Untried Materials is to Take a Big Chance

AMONG *the* POTTERIES

A series of joint conferences has been in progress in East Liverpool, Ohio, between the labor committee of the United States Potters' Association, composed of W. E. Wells, of the Homer Laughlin China Company, Newell, W. V., as chairman; H. N. Harker, W. L. Smith, Patrick McNicol, George C. Thompson, Thomas B. Anderson and Homer J. Taylor, of the East Liverpool district; Harry D. Wintringer of Steubenville, Ohio, and Frank A. Sebring, of Sebring, Ohio, and representatives of the National Brotherhood of Operative Potters. The object of this conference is to fathom, if possible, the cause of the present apparent unrest within the ranks of some of the workers and, if possible, to work out some amicable means whereby during the balance of the fiscal year relations between the manufacturers and the workers will remain pleasant.

One of the main propositions confronting the conference is the possible changing of the making price of plain jiggered ware to take the same price as that being paid for fancy or festooned shapes. The bulk of the flat ware being made in the American potteries today is a plain shape, this being caused by a heavy retail demand for such a shape. Some years ago the festoon or fancy shape was all the "rage," and a higher price was paid at the time for festooned shapes than for the plain ware. The jiggermen contend that under existing conditions, with reference to the high cost of living, that the making price for festooned shapes should be paid for the plain. Help employed and paid for by the jiggermen costs more, so that at the end of the two weeks, the jiggerman has not as much left for himself as formerly.

One other salient matter considered at these conferences is the differences existing between the kilnmen and the officials of the Brotherhood of Operative Potters. While these two units appear to be at loggerheads, the manufacturers are holding the bag. What the manufacturers want to see is harmony between the two divisions. It is common talk in the East Liverpool district that the kilnmen, that is to say a minor portion, desire to dictate their own working policy thru their own channels instead of thru the Brotherhood; this in face of the fact that the latter has an agreement with the pottery manufacturers. It is also said that just about two score of kilmen are urging the adoption of these suggestions out of a possible membership of over five hundred men.

President Edward Menge and the other national officers of the Brotherhood strenuously contend that agreements existing between the organization and the manufacturers, signed in good faith last year by representatives of both sides, are binding and should be lived up to by the kilnmen. It is also pointed out by the officials of the workers that the manufacturers have yet to fail to correct any unjust abuse or condition, once it was brought to their attention thru the proper channels.

These conferences, which are for the time being classed as "round table talks," and not an official sitting, may lead later to the opening of the present wage scale, when official changes will be made thru an accredited joint conference between workers, officials and manufacturers.

SANITARY WORKERS TO PRESENT DEMANDS SOON

At the headquarters of the National Brotherhood of Operative Potters in East Liverpool, secretary-treasurer John T. Wood is now drafting all propositions acted upon at the recent Atlantic City convention to be presented to the Sanitary Potters' Association. The draft will be forwarded as early as possible to James J. Dale, secretary of the Sanitary Potters' Association at Trenton.

It is reasonable to believe that after Mr. Dale has received these propositions, which call for various changes in working conditions and wage increases, that a general meeting of the sanitary pottery manufacturers will be held, when the draft will be given thoro discussion. At the same time, the labor committee of this association, which later will meet in joint conference with a committee of the workers, will be instructed what to agree to and what propositions are to be rejected. The time and place for the meeting of the manufacturers or for the joint conference has not been announced. The present sanitary pottery wage scale expires October 1st next. It has been in effect for two years. Since 1908 the sanitary potteries and also the general ware potteries have been working under two year agreements.

About two months ago, the sanitary potters held a closed meeting in Pittsburgh, Pa., but nothing was announced about this gathering at that time. It is intimated unofficially, however, that working conditions with reference to the approaching wage conference were discussed. The manufacturers had been advised, in a measure, of some possible wage resolutions that were to be presented at the convention of the workers, but as this was only a bit of advance information, no formal action could be taken.

Officials of the Brotherhood have refrained from announcing details of the propositions which will be presented to the sanitary pottery manufacturers. The claim is made that this is only a matter that concerns the manufacturers and not the general public. At this time every indication points to the final drafting of an amicable agreement between the two sides.

CHEMICAL PORCELAIN PLANT MAKES IMPROVEMENTS

Extensive improvements are now being made on the plant of the Coors Pottery Company of Golden, Colo., that are expected to more than double its present output. Two additional kilns are now under construction and plans are being made for building two more in a short time. Work is also under way on a new storage shed and machine room building that is to be larger than the one now used. The ware produced at this plant has attained the reputation of being equal to the famous Royal Berlin ware from Germany. The inability of buyers to get the German product has led many to adopt the Golden chemical porcelain ware which they proclaim to be equally suitable. The continuance of the European war has greatly increased the volume of business being done by this company and has made necessary the erection of the new building and other improvements that will increase its capacity.

NO CONCERTED EFFORT TO ADVANCE PRICES

While it has been rumored for some time that an advance in the selling lists of American pottery would become operative July 1, such a change has not been officially announced by any particular firm. Several months ago manufacturers, of their own accord, started to add five per cent. to the base of all invoices, including packages, and since then several firms have revised their selling lists and withdrew the five per cent. ruling, also allowing the usual cash discount. In such instances, the prices of different patterns of dinnerware have been advanced from five to 33 1/3 per cent., according to the character of decorations. Buyers do not object to the advance, and are willing to pay it, if they can secure quick delivery of merchandise. It was only a few days ago that the manufacturers were given another jolt when they were told that the Florida clays would cost more, advances of late having amounted to more than one dollar per ton. Chemicals have also been soaring and, in many instances, labor is being paid a higher scale. However, there has been no concerted effort among domestic pottery manufacturers to advance all present prices, changes being left to the opinion of the individual manufacturers.

KILNMEN NOT IN HARMONY WITH BROTHERHOOD

Indications point to the fact that the kilnmen in the eastern Ohio potteries are not in sympathy with the present administration of the National Brotherhood of Operative Potters. A committee of kilnmen a few days ago in a three-hour conference with one pottery manufacturer intimated that the kilnmen's local would give the manufacturers all the apprentices necessary to fill depleted ranks, should the manufacturer agree to the wishes of the local union. Such a report was circulated, and after this particular pottery had been placed on the "unfair list" by the kilnmen alone, the conference resulted in the kilnmen lifting their ban, and once again the pottery was classed as "fair." There was a story going the rounds some months ago that the kilnmen talked of withdrawing from the Brotherhood of Operative Potters, but later this was denied by the officials of the organization.

FILES ACTION AGAINST DRESDEN CHINA COMPANY

William R. Davis, as trustee, has filed an action in the common pleas court at Lisbon, Ohio, seeking a judgment for $4,500 against the Dresden China Company and others. The Dresden China Company is not an operating concern at this time. It built the first pottery in Salineville, Ohio, and at the time was headed by William H. Deidrick, now deceased. After several years of operation, the pottery was closed, remaining inactive a number of years until purchased by the National China Company, which was then operating in East Liverpool, Ohio. The National continues in business at Salineville. Mr. Davis contends that the action is based upon a promissory note given March 1, 1906, upon which $3,400 is due. Another amount of $710 is also claimed due on a second note which was given June 1, 1906. With interest, a judgment for the above amount is sought.

GAS COMPANY SAYS FUEL SHORTAGE IS ENDED

The Manufacturers Heat and Light Company, with head offices in Pittsburgh, Pa., and which supplies all potteries with fuel in the Ohio Valley, has just issued a detailed statement to the effect that the pottery manufacturers need not harbor any fear of a gas shortage during the coming winter, similar to that experienced during the past season. Immense losses were sustained by the pottery manufacturers because of the gas shortage, which prohibited the operation of plants. In turn, this caused a shortage of ware, and an inability to fill orders. Because of this condition, the manufacturers have been unable to catch up with their orders even to this day. The gas company declares that it has drilled in over one hundred new wells of large producing capacity, which added production will insure against a shortage.

LOUISVILLE POTTERY COMPANY HAS BUSY SEASON

The season is still a busy one at the plant of the Louisville (Ky.) Pottery Company. Jars have been in very brisk demand, with some call for jugs. Flower pots have been slow, altho there are indications that the demand for this product will be restored to normal volume before many weeks. An interesting situation is disclosed by the fact that the company is still making a large number of the old-style stone churns, with the cover pierced for the dasher handle. Some of the customers of the company order these churns with one jug handle, making the vessel easier to handle, and these are supplied at an increase of half a cent a gallon on the pottery's prices. Occasionally an order calls for the dashers also, tho as a rule these are purchased by the user of the churn.

JIGGERMEN HELPERS TIE UP CLAP SHOPS IN STRIKE

The strike of batter-outs and mold runners, employed by the jiggermen of the National China Company at Salineville, Ohio, has been settled, after it continued for a week, and caused inactivity in the clay shops. The firm has nothing to do with the payment of these boys, and the jiggermen did not feel inclined to increase the wages unless assistance was obtained from the factory office. The firm contended they were not concerned, as the boys were not even on the pay roll. After several conferences between the strikers and the jiggermen, the trouble was adjusted, and the plant resumed work in full July 20.

INTERESTING POTTERY NEWS FROM HERE AND THERE

The former plant of the American China Company, at Toronto, Ohio, is being dismantled, and will be converted into a paper manufacturing plant. This was one of the oldest potteries in the Ohio Valley, and since the old company went out of business, the property has been idle. The Steubenville Pottery Company of Steubenville, Ohio, at one time contemplated taking over the plant, but on account of its condition, the scheme fell thru.

Capacity of the H. R. Wyllie China Company of Huntington, W. Va., is being increased thru the placing of additional machinery. New filter presses have been installed, while improvements have been made in the clay shops. This concern, which has in the past given its 300 employes a two weeks' vacation, allowed only one week this season, the reason being the increased volume of business on hand.

Two new kilns are to be built immediately at the plant of the Jackson China Company, Falls Creek, Pa., which is a suburb of DuBois. Contracts have been awarded East Liverpool kiln builders. The improvement will give the company a four-kiln plant. This plant was formerly engaged in the manufacture of a short line of white-lined cooking ware, made from a domestic yellow and red clay body. The new owners of the property will manufacture china ware.

Frank A. Leonard, one of the most widely known domestic pottery salesmen in the United States, and who had been active on the road for nearly fifty years, died recently at his home in East Liverpool, Ohio. He was buried in Allegheny Cemetery, Pittsburgh. He severed his connection with the Thompson Pottery Company January 1, last, and since then he had been in failing health.

At the annual meeting of the stockholders of the Colonial Pottery Company, of East Liverpool, Ohio, George W. Meredith of Pittsburgh, Pa., was elected president. A six per cent. dividend was also declared. The concern, while working the plant at full capacity, admits there is a serious shortage of workmen.

The National China Decorating Company has been formed at Chicago, Ill., with a nominal capital stock of $2,500. This company will feature the decorating of high-grade domestic and imported white ware specialties.

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Protecting Pit Workers from the Heat

Now that the heat of mid-summer is becoming oppressive and the mercury is trying to butt the top out of the thermometer, it might be well to look to the protection of the men on the plant, in order to keep them in good condition and maintain capacity operations. One group of workmen that is much in need of protection is that working in the pit with pick and shovel, as is done on many plants, keeping the rest of the establishment supplied with "ammunition" for the day's work. In most cases these men are entirely exposed to the sun while performing the hardest kind of manual labor.

A simple and comparatively inexpensive means of providing protection for these men is to erect a "pit tent." This is done by tying one side of a large square piece of canvas, of a size that is convenient, to the top of the bank at that point where the men are working and fastening the other side to stout poles at some point in the pit, just far enough from the face of the bank to allow ample room for the passing of clay cars beneath it and for the men to work unhampered.

On one plant where this "tent" is in use, the piece of canvas is twenty feet square and the face of the bank fifteen feet high. However, in case the bank is higher than this, it is not a difficult matter to attach ropes to the corners of the canvas and suspend it in the air so that the shade falls upon the men.

Besides providing a much more comfortable place to work in warm weather than the hot sunshine, the "pit tent" has another use to which it may be put. In rainy weather it can be used to good advantage when spread over that portion of the bank where the men are working, not only giving them a dry place in which to work, but also preventing the clay from becoming excessively wet and hard to handle. The fact that the "tent" may be pitched in a few minutes, makes its use in this connection very convenient.

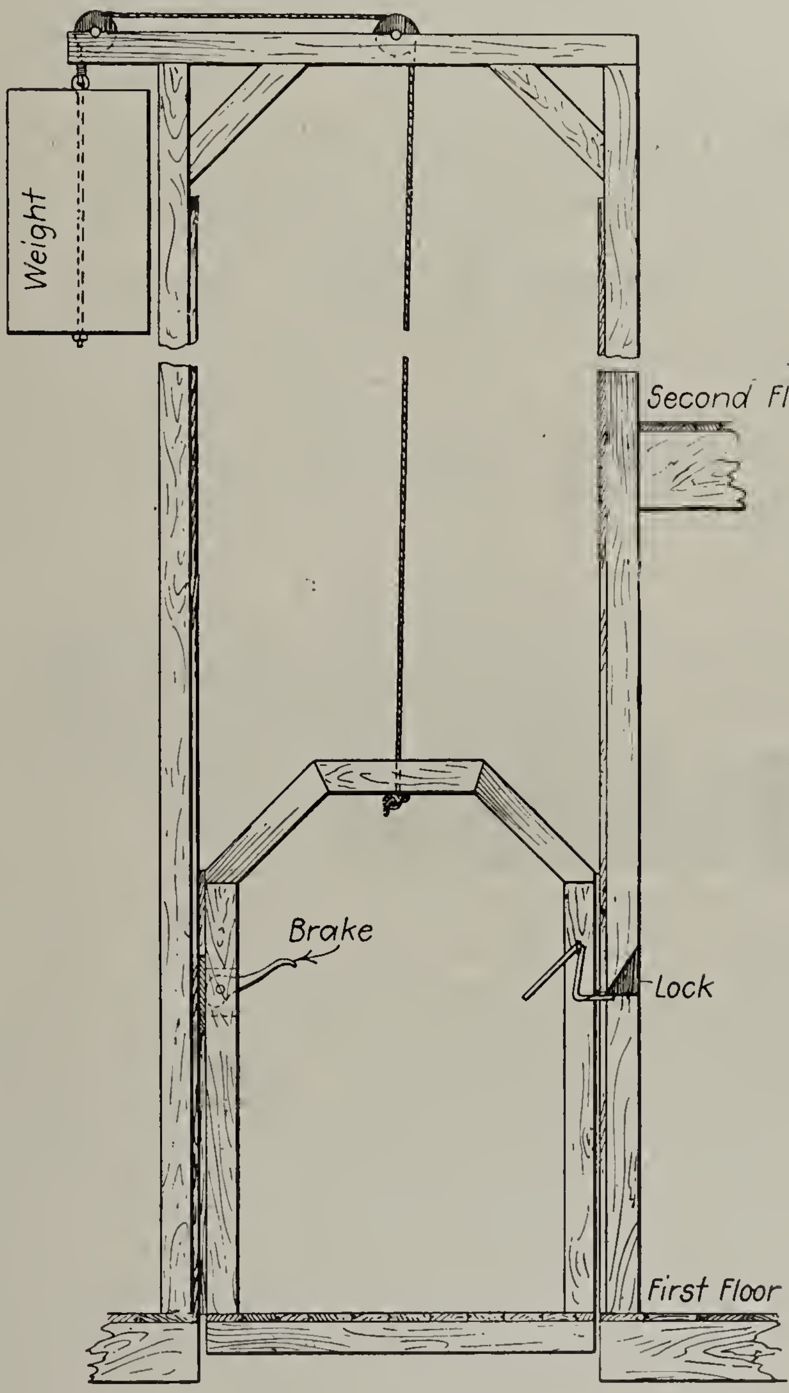
Using a Small Plant Gravity Carrier

Money-saving devices for the small, as well as for the large plant are continually being uncovered—kinks that when taken advantage of and put into practice, may be of considerable value. The device illustrated and explained herein falls into that class of equipment and should be of especial interest to the small plant superintendent or owner.

It is a gravity carrier or elevator designed by a Kentucky clayworker for the purpose of lowering materials from the second to the first floor without using any power. Comparatively simple in its construction, it represents a piece of equipment that can be copied to advantage by those whose plant conditions make its use practical.

The device consists of a weight, attached by means of a rope to a cage that is sufficiently heavier than a man, wheelbarrow and the cage to draw the carrier up when no more than this weight is placed upon it in its upward journey and when the lock shown at the right of the sketch is released. When the device elevates the man and his barrow to the second floor, the brake, shown at the left, is applied, holding the cage in that position until the workman gets on it with a load of material. The additional weight of the ware in the barrow, or other object used to carry the material, is enough to overbalance the weight and consequently the cage descends and is locked in place by the automatic catch shown on the right hand side of the drawing. This prevents the weight from pulling the cage to the top of the shaft.

It may be somewhat clarifying to explain the construction of the brake used to hold the cage at the second floor while the workman is filling the barrow. The handle has an eccentric head so that when raised up a space is left between it and the board at the side. When pushed down, however, the shape of the head, being as it is, a pressure is gradually exerted upon the board that increases with the force of the



A Gravity Carrier That May Be Used in Conveying Materials from Upper Floors to the First. This Should Be of Especial Interest to the Small Plant Superintendent or Owner

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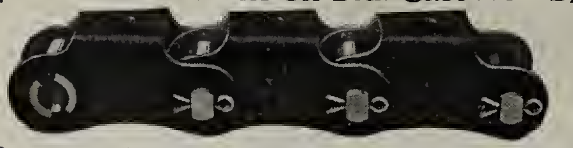

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When you think of cars, think of
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They are made of steel—in the steel city—in the greatest clay district in the world. No better cars can possibly be made, and if you consider quality and satisfaction and low upkeep, you will have to give the highest honor to Youngstown Steel Clay Cars.
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downward stroke. Immediately in front of the brake handle is a "floating" piece of wood about a foot or so long, suspended between two strips securely fastened to the cage above and below it. This "floater" is a portion of the long, thin strip of wood fastened to the side of the cage that fits into the guiding boards which control the course of the carrier, it being cut free from the remainder and suspended between them. When the brake is applied, therefore, the "floating" piece is pushed tightly up against the guiding boards at the side of the shaft, producing considerable friction—enough to hold the cage in place without it being pulled up to the top by the force of the weights.

The lock is also of a simple design, being only a bent rod loosely held to the side of the cage by means of a heavy staple. As the carrier descends, the lock, being automatic in its action, strikes the block on the side support, runs down its surface and as the carrier reaches the bottom, is swung below the block by the weight of the handle.

The guiding posts are built up along the weight side of the shaft and consist of two 1x4-in. boards fastened to the side support about one or one and one-half inches apart. On the corresponding side of the cage is nailed a strip of board that fits into the space between the guiding boards, thus making the carrier go up and down without much swaying or jerking. It is a portion of this board attached to the cage that is suspended, and which holds the cage in any position in the shaft when the brake is applied.

Of course, it is evident that this type of carrier is only available where it is desired to lower materials. It would not be a difficult matter, however, to utilize power in connection with this contrivance to elevate materials.

Instruments for Testing Flue Gas

Instruments for recording carbon dioxide in flue gases are described in Bulletin 91, of the Bureau of Mines, Department of the Interior, J. F. Barkley and S. B. Flagg, authors.

In explaining why the Bureau of Mines has issued a report of this character, the authors say: "In the past few years an awakened activity in power-plant economies has resulted in a marked improvement in the equipment for generating and utilizing steam. Altho the improvement in design and construction of steam-driven prime movers has been greater than that of the steam-generating equipment, the economies obtained with the more efficient engines and turbines have stimulated interest and activity in eliminating unnecessary boiler and furnace losses.

"Much attention has been given to the boiler room in efforts to obtain proper combustion of the coal, because of the importance of the coal item in costs of power production. As evidence of this increasing interest may be cited the record of the development within the past few years of new apparatus for the analysis of flue gases. Many new forms of apparatus have appeared, including those for the determination of carbon dioxide, oxygen, and carbon monoxide, and others for indicating and for recording the content of carbon dioxide only, as carbon dioxide content is usually a good indicator for the control of furnace operation.

"Because of the large number of steam-power plants operated by the Federal Government and the number of carbon dioxide recorders used therein, the Bureau of Mines undertook to collect information regarding the practical application of such recorders. Articles published from time to time concerning carbon dioxide recorders have been mostly descriptive giving little reliable information as to the results that could be expected from the various types of instruments in ordinary practice, and most of the tests made have been of a laboratory nature.

"Tests of several different types of recorders were made under service and laboratory conditions in order to obtain needed information. The purpose of the Bureau of Mines in publishing the results is to show the factors which may affect the accuracy of a carbon dioxide recorder and the manner in which a recorder should be tested."

Copies of this bulletin may be obtained free of charge by addressing the Director of the Bureau of Mines, Washington, D. C.

⁂

Duty Fixed on Fire-clay Shapes

The Assistant Secretary of the Treasury, Mr. Peters, has written the following letter to the Collector of Customs at New York, relative to duties on conduits of clay and carborundum. He says:

"Regarding the classification of certain so-called conduits consisting of pipes or tubes and angles made of fire-clay and carborundum and used in the construction of ovens for baking chinaware.

"At Philadelphia it appears that the merchandise is all assessed with duty at the rate of twenty per cent. ad valorem under paragraph 81 of the tariff act of 1913, as articles composed of earthy or mineral substance not specifically provided for. It appears that this practice agrees with that at your port as to the articles when composed in chief value of carborundum, but it further appears that it has been your practice to assess duty on articles composed in chief value of clay not glazed, enameled, painted, vitrified, ornamented, or decorated in any manner at the rate of ten per cent. ad valorem as fire-brick not glazed, etc., under paragraph 71 of the tariff.

"You now submit a report from the appraiser at your port with respect to articles in chief value of clay, from which it appears that they are not commonly or commercially known as fire-brick and the appraiser's office and your office agree with the classification thereof at twenty per cent. ad valoreu under paragraph 81.

"The department concurs in the classification of the articles under paragraph 81, whether in chief value of clay or carborundum, and you will assess duty thereon at the rate of twenty per cent. ad valorem, if not decorated, under the said paragraph."

Antique Specimens of Burned Clay

Several interesting specimens of burned clay products that have been made famous by their extreme age are in the possession of R. F. Jackson of the Jackson, Johnson and Corning Company, brick and building material dealers of Minneapolis, Minn. One of the pieces that proves clay products to be "best by time's test" is a piece of blue enameled roofing-tile taken from the Temple of Heaven, Pekin, China, during the Boxer Rebellion by a captain of an Austrian regiment, while assisting in the saving of the foreign colony in Pekin. It is claimed that the relic is more than two thousand years old. Included in the collection is a number of pieces of brick taken from the walls of the Coliseum at Rome, Italy, which was built in 85 A. D. Another piece, obtained by Mr. Jackson himself from the roof of the Fanando Mission, is a portion of an old floor-tile made by the Mission Fathers at San Diego, Cal., to line an aqueduct and to face a diversion dam.

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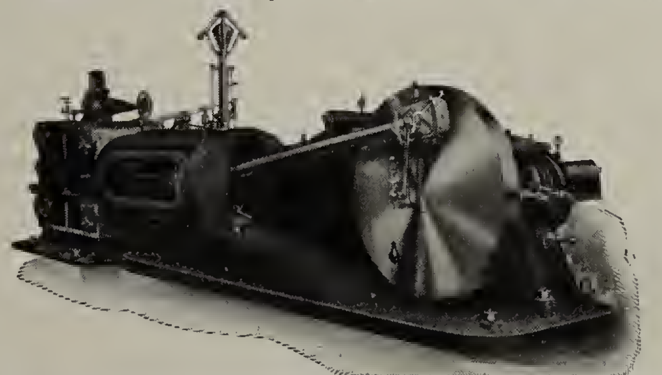

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No order too large to handle promptly or too small to secure immediate attention.

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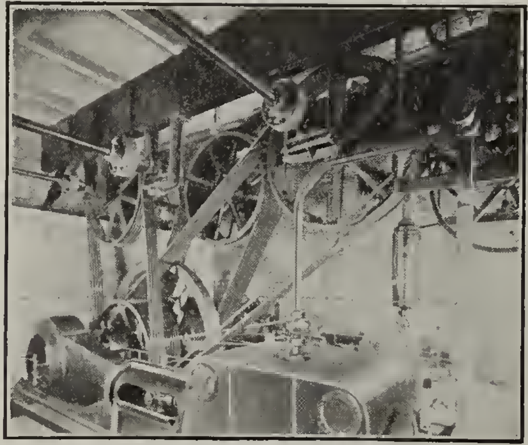

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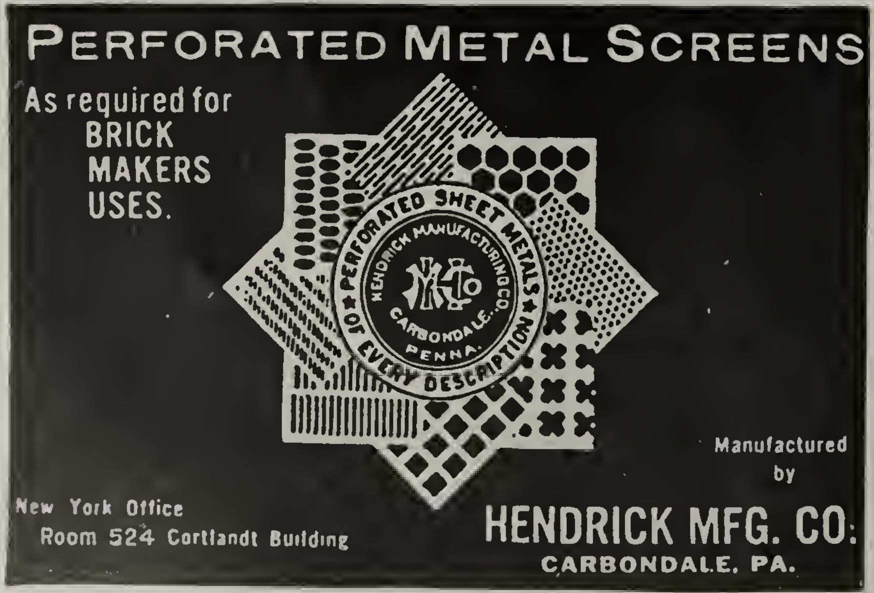
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The LETTER BOX

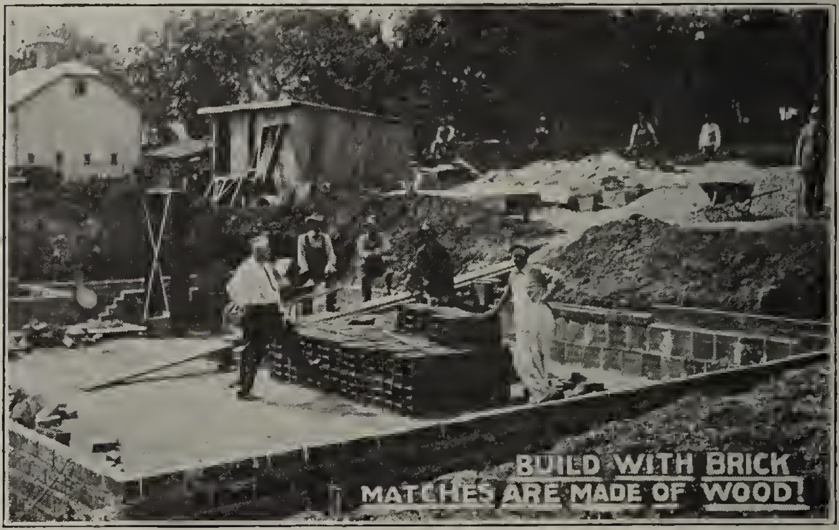
A Place Wherein Letters
That Have General Interest Are Published and
Commented Upon

Says "Build With Brick" Slogan Is Incomplete.

Another letter from our old friend Adolph Lippman of Maryville, Mo., is given below. In this communication, Mr. Lippman advances an argument concerning which few of us have given much thought. It is that the slogan "Build with Brick" does not tell the why and wherefore of such a course. Therefore, it is incomplete. His letter reads as follows:

Answering your favor of May 31, beg to say that I consider the slogan "Build with Brick" to be incomplete.

I have started to build some five and six-room houses in order to determine to my own satisfaction the difference in cost of construction between frame and burned clay materials. Much that is printed on this subject will not stand the acid test of working out in reality. To advertise comparative costs that are unusually favorable to brick and hollow-tile, but which have not been given a thoro test in actual building, I consider rank folly, and doubt if manufacturers of clay products can ever, under such conditions, create the demand for these materials that they so justly deserve.



Wherein a Progressive Builder is Seen Following Out His Belief in the Permanence of Burned Clay Construction by Building a House of Hollow-tile, Faced with Brick

I started to build these houses with fireproof floors of hollow-tile covered with a few inches of concrete. But the high price arising from the necessity of having to ship in all materials from a considerable distance caused me to change my plans and make use of wooden joists. For the exterior walls I used hollow-tile faced with brick. The roofs were covered with asphalt shingles.

Now, as to the postcard (which is shown in an accompanying illustration). Yes, I am the man with a foot resting on a pile of tile. I am getting towards the end of life and have taken up this work to keep myself occupied and possibly be able to show the community that houses for the ordinary, every-day citizen can be constructed of more *fire-safe* materials without a great advance in cost over those built of wood. And why not call attention to the fact *that matches are made of wood.*

Possibly the masons have something to do with causing people to hesitate to build with brick. I know for a dead certainty that the carpenter-contractor is the last man to advise and induce prospective homebuilders to make use of burned clay products.

What methods then should be adopted to interest those about to build inexpensive homes and to convince them that clay products can be used advantageously, considered from the standpoint of first cost? Every citizen should be interested in fire elimination and I am sure that clay products will accomplish this more effectively than any other material. This is the reason why I am interested in "Brick and Clay Record."

In a previous communication Mr. Lippman said:

"Build with brick. But why? Everlasting? Fire-safe? Indestructible? Most durable? Which one of these is it that should accompany the above slogan?"

Without waiting for us to answer he has supplied his own complement, namely, *matches are made of wood.*

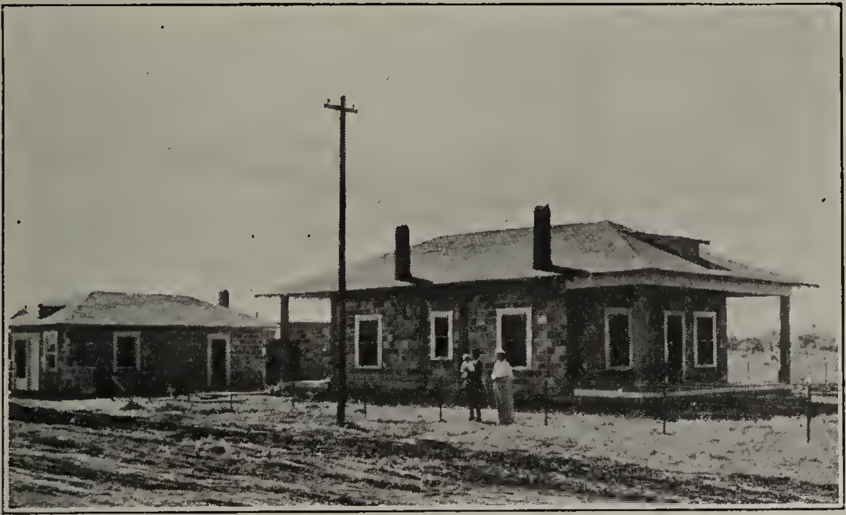
The matter of backing up the "Build with Brick" slogan by stating why this should be done, is certainly worthy of consideration. We have in mind a man riding along a country road and seeing a sign on a fence reading "Build with Brick." If the sign makes any impression upon his mind at all, he will immediately begin to inquire to himself—why? Sooner or later this man must be convinced by definite, hole-proof arguments that he should use the best of all building materials, if he is to be won into the ranks of safe and sane builders. Of course, there is this advantage of the slogan—it is brief and easy to read. There is also some advantage in its incompleteness in that it arouses curiosity in the minds of readers, some of which are bound to search for the reason why.

However, as above stated, it is certain that at some time the slogan must be followed by further explanation and as to how this should be done—underneath the slogan, or otherwise—is a question for the manufacturers of burned clay building materials to solve individually. In this connection, Mr. Lippman's suggestion is a good one and might be followed with profit.

Building a Hollow-tile House in Texas

The Lone Star state is in the limelight; has been for a good many weeks past, during which time its borders have become less populated with Mexican bandits and more numerous with militiamen. It is not easy to forget that Texas is on the map these days when we read daily of reports from the various camps along its border where the soldier boys are sojourning under the sweltering sun of that climate and getting a taste of many of the inconveniences of war without having actually engaged therein.

Therefore, it comes as sort of a pleasant relief to learn that some of the people of that state, at least, are not buried in the contemplation of diplomatic correspondence and the refractoriness of bandit leaders.



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John M. Canada, editor of the "Southland Farmer," La Porte, Tex., writes us under a recent date, giving some inter-

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Will easily cut your present fuel bill half in two

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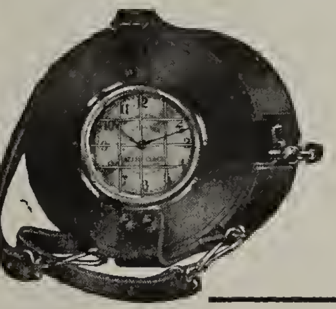

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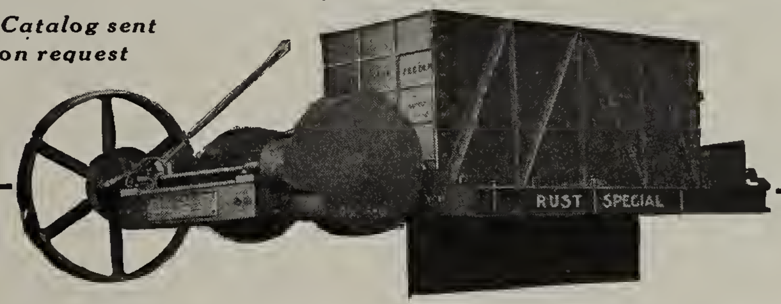

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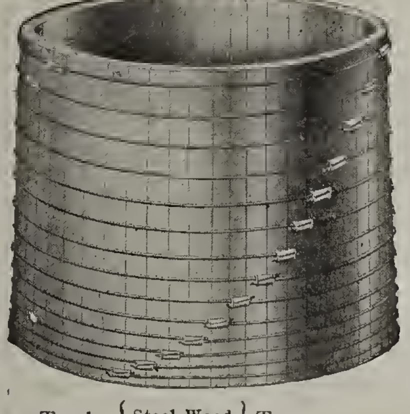

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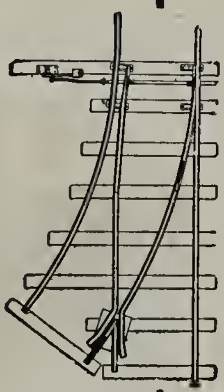

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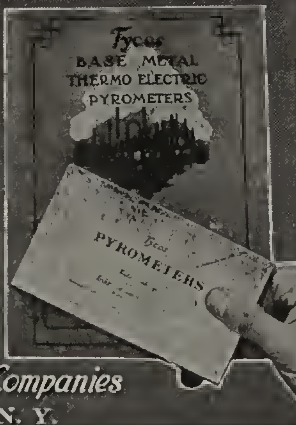


Ask for these Books

Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

esting details with regard to a hollow-tile house which he has recently built and which he thought would be of interest to our readers. Mr. Canada says:

> The tile used in building my house, an illustration of which I send you, herewith, were of burned clay, 8x12 in., with a thickness of 5½ in. and with smooth outer surfaces and corrugated edges. The tile were laid one tier thick and present a smooth outer surface.
>
> The foundation consists of concrete, measuring sixteen inches thick at the base and twelve inches at the top. The foundation is twenty inches high. In building the wall, forms made of six and twelve-inch boards, were set at each corner and also in the sides wherever a partition came in the house. As the tile were laid, concrete was poured into the forms and reinforcing put in. The concrete not only filled the space between the forms but ran into the ends of the tile that abutted into the forms, thus tying the tile securely into the concrete pilasters. This construction was followed as the laying of the wall progressed. Bolts were then imbedded in the top of these pilasters as well as in the joints of the last course of tile and two 2x6 in. plates bolted on. The joists were laid on these plates, tying the house together and rafters were placed on top of the joists.
>
> As may be seen in the accompanying illustration, no finish was placed on the outside surface of the tile. On the inside, furring strips were nailed to plugs set in the mortar joints and wall board, instead of plaster, applied as the interior finish. The wall board was tinted in different colors for the various rooms. A thin coat of plaster, kalsomined, was put on as the interior finish of the office building in the rear of the house, also in the kitchen of the house.
>
> I did not waterproof any of the mortar, so for a while, a hard rain would show some moisture in the plaster finish where the tile joints were located, but not enough to make any material difference. The rooms in the house finished in wall board have two sets of air spaces in the walls, those in the tile and that back of the board made by the furring strip. The result is a house remarkably warm in winter and cool in summer.
>
> Altogether, the house looks different from anything I have ever seen built. Other tile walls have been stuccoed, but I prefer the natural tile, stuccoing the pilasters at the corners and at the sides of the building.
>
> Since all of my buildings are but one story in height and built with one thickness of tile, making a 5½-in. wall, they are plenty strong enough with the reinforcing pilasters in the large building, and without them, in the smaller ones, altho not for a two-story structure. The small structure of circular shape shown in the background, is also built of tile with a concrete floor and top. The floor of the office building is concrete. In fact, I have built nothing of wood that could be made of tile or concrete.
>
> The dimensions of the house, all over, are 28x54 feet; of the office building, 16x30 feet. The height of the ceilings in the rooms is 10½ feet while the height of the floor above the ground is thirty-two inches.
>
> The tile cost me, laid in the wall, including the material, freight, sand, cement, lime and labor, about ten cents each or fifteen dollars per square. This may be a little more than lumber, but there is no depreciation of the building by reason of weather or age. Rather both the tile and cement gain strength by age. I find also a very substantial saving in insurance rates, as well as upkeep.

The most interesting point, to our way of thinking, in the above description of the building of Mr. Canada's house, is the fact that its walls are only five and one-half inches in thickness, something very unusual in a structure of that size. This thickness of wall has been employed extensively and successfully in small farm structures, such as hog and chicken houses, and silos, where the round form of the structure permits of a thinner wall than might ordinarily be used. The idea, of the thin wall, however, in dwellings is well worth while considering, especially where there are no ultra-conservative building codes to interfere with such a practice, inasmuch as it effects both a saving of material and labor in the erection of a hollow-tile house.

The Semi-Monthly Trade Review

With the mercury in the thermometer setting new midsummer heat records and the vacation period well under way, it is rather expected that the volume of building thruout the country would recede a considerable amount. This, however, is far from being the case. While there have been some reductions in the value of building permits at certain points, yet the drop is not of sufficient importance to receive any serious consideration.

Despite the fact that the labor disturbances of the country were greater in the first six months of this year than in the entire year of 1915—more strikes being called in that time than in all of last year—marked increases in the amount of building were noted up to July 1 over the corresponding period of last year. In this period there were 138,200 permits issued in 141 cities, having a value of $470,801,820—an increase of 2.8 per cent. in the number of permits issued and of 27.6 per cent. in value over those issued during the same six months of last year.

PROSPECTS BRIGHT FOR FALL BUILDING

Prospects for very active fall building are bright. In fact, delayed construction is one of the important factors in the building situation of today, many big operations being held back because of reported high prices and other supposedly detrimental elements, the foremost of which is, perhaps, structural steel.

If forecasts made now relative to the condition of the steel market and its development can be relied upon, all the building now being held up because of the high price of this material is bound to materialize before winter. The reason for the present high prices of steel is, of course, the tremendous quantity being exported for the use of the Allied forces in the European conflict. As time progresses, however, an appreciable reduction in the exportation of steel is foreseen, as the productive power of the Allies increases. The factories of France, Great Britain and Russia are now able to produce finished arms and munitions, as well as sheet steel, castings and forgings in quantities almost sufficient for their own great needs. It is only a matter of the time required to fill the contracts now on hand, according to predictions, before the domestic demand will exceed the foreign, and a consequent recession in prices occurs. This, in turn, will throw many of the suspended or backward operations in the procession of active undertakings, pro-

You Simply Can't Do It—

You **can't** get the best results from your blasting unless you use a

CYCLONE DRILL

If you will write us for Bulletin B 4, we will tell you how the Cyclone Drill has paid for itself in a few months' use.

The Sanderson-Cyclone Drill Co.
ORRVILLE, OHIO

The All-Steel
K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.

Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

Write today for full details to the

K-B Pulverizer Co., Inc.
86 Worth Street
New York

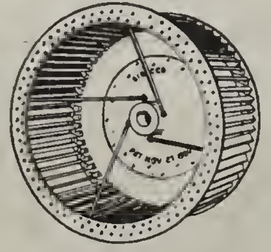
¶The most widely known automobile manufacturer in the world recently said, in an interview, that he "does not believe anything he does not understand."

¶Yet where would this old world be if all our great leaders of progress had acted on that kind of philosophy?

¶You know—as we know—that progress comes from thought rightly directed—from hope and faith—from perseverance.

¶The clay products industry is no exception to this rule, and those who are making greatest progress are getting helpful ideas from every possible source. They are the ones who read and absorb the advertising—who investigate—who are open to conviction.

¶Try it on yourself and see how much it means to you.



Sirocco Fans Are Not Confined to Brick Drying

BECAUSE of the supremacy of the Sirocco Waste Heat Drying Systems, and the emphasis our advertising has put on it, many manufacturers had the idea that Waste Heat Drying Systems are the only pieces of Clay Product apparatus to which the name Sirocco is applied, and that brick is the only clay product in the manufacture of which Sirocco Fans play a part.

Sirocco Fans can be used just as advantageously in the drying of pottery, sewer pipes or any other clay product. Its economical qualities and usefulness also extends to supplying forced or induced draft for your kilns, thru which you can materially cut down your coal and repair bills and at the send for it now, while it is in your mind.

Clay Products Bulletin No. 13-A will interest you. You should send for it now, while it is in your mind.

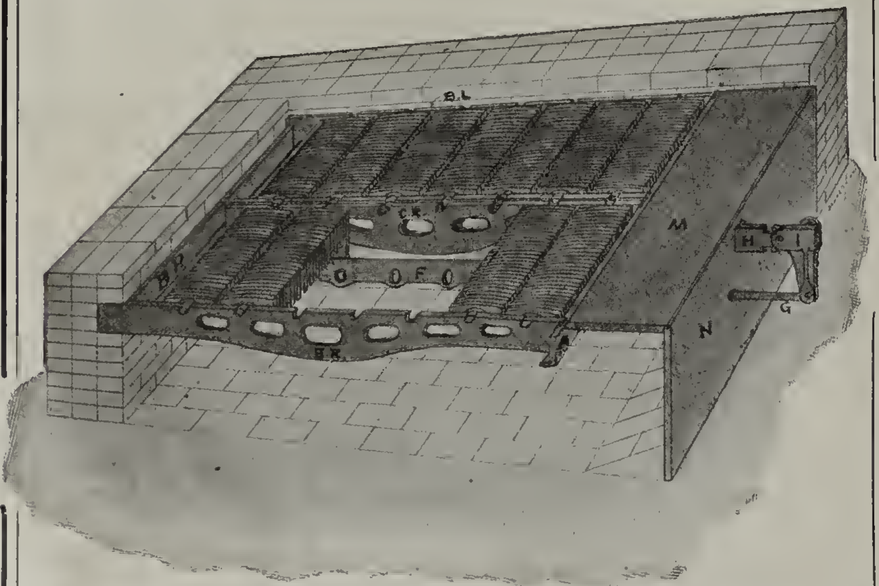
American Blower Company
Detroit, Michigan
Branches Everywhere

Those brick companies that have installed the

CYCLONE BOILER GRATES

never have to worry about their power plants because they know they are getting more heat out of less fuel than they have ever been able to get in the past.

We had to prove it to them first, however, just the same as we ask the opportunity to prove it to you—by installing our grates on **90 days' trial.**



CYCLONE GRATE BAR CO.
BUFFALO, N. Y.

ducing a fall demand that is destined to be well in advance of the usual call for materials at that time.

Local building conditions thruout the country are showing up well in comparison with other years, in most cases gains being reported over the corresponding period of last year. But a slight loss was registered in the past week when compared to the previous few weeks' figures. This is the condition prevailing in the Chicago market, the value of permits issued there during the week of July 17 being $2,117,900—$312,500 below the preceding week and $828,300 above the value of those issued during the same week of 1915. A pleasing phase of the Chicago situation is that all of the big work is not being done in the loop district but is finding its way to outlying districts and suburbs.

ST. LOUIS EXPERIENCES A TURN FOR THE BETTER

Conditions in St. Louis are rapidy improving; the stagnation that has held that market inactive for the past month or two is gradually lessening. Most of the proposed work is in the form of apartment houses. Reflecting the prevalent conditions in the West, Kansas City is enjoying much prosperity in the building line. Altho in the convalescent stage from a strike that tied up all building operations for over six weeks, this center is now the scene of considerable activity. Good building conditions are also reported out of Minneapolis, many large projects going on there.

CONSIDERABLE ACTIVITY ON THE PACIFIC COAST

Along the Pacific coast the demand in many places exceeds the supply. As an example of the tremendous gains made in building during the first half of this year over the same period of last year, the report of San Francisco, issued by the San Francisco Board of Public Works, shows an increase for the fiscal year ending June 30 over the preceding one of $3,789,000. The number of permits issued at this point during that period amounted to 7,558, having a value of $18,018,000, while those issued the previous fiscal year numbered 6,387, with a value of but $14,226,000. The building situation for the last few weeks at San Francisco has been effected to a great extent by a stevedore's and longshoremen's strike. This has, however, now been settled. The bay and river boatmen, after returning to work for a few days, again struck, but it is believed that the difficulties with this faction will be speedily settled so that river shipments will not be interfered with. Stevedores at other Pacific ports are still on strike, preventing the shipment of any lumber into the larger cities, effecting very materially the prosperity of brick and other clay products manufacturers and dealers. While it is planned to start a new organization of laborers to handle the ocean shipments, yet it is doubtful if satisfactory results will be gained from this move, since, it is thought, the teamsters and others who must assist in the movement of materials will not be in sympathy with it.

Stockdale, Cal., reports such a volume of building that the local clay products manufacturers are unable to supply the demand. Contractors are compelled to go to other markets for their material.

DETROITERS QUOTING SEPTEMBER DELIVERY

In the eastern section of the country the prosperous conditions reported for the past two or three months are still continuing. Detroit manufacturers are so closely crowded for brick that few if any promises can be made for immediate delivery, the price of commons being $10 per thousand, and the delivery date often being set far in September. It is true that fluctuations have occurred in the value of permits taken out at different times during the past few months, but this condition causes little concern for the local brickmakers who are compelled to work their plants to capacity in meeting the large number of orders already on hand. Manufacturers of and dealers in building materials in Cleveland, Canton, and other Ohio points, while not enjoying the same "boom" conditions as is Detroit, are not displeased with the amount of construction going on. Comparisons are favorable with corresponding periods of other years.

SMALL JOBS PREDOMINATE IN LOUISVILLE

Louisville (Ky.) brick and clay products manufacturers and dealers are having the fact, that because there is not much of big business going on it does not necessarily mean that the volume of business is small, forcibly called to their attention. Altho several large projects ahead have yet to develop, there is a good deal of activity prevailing at the present time, due to deliveries that are still being made upon jobs already under way and the new market furnished by the construction of small town commercial buildings, that is of late being given a great deal of attention by the building interests.

A gain of $750,000 in the value of permits issued during the first half of this year at Indianapolis, Ind., has taken place, despite the fact that the cost of materials at this point is reported as being much higher than the prices prevailing at the same time last year. At Baltimore, Md., considerable industrial building is in view, while much suburban construction is now under way. The reports from both Pittsburgh and Philadelphia are not very optimistic. At these places there seems to be a serious shortage of materials that is holding much of the building work back. It is said that some operations, planned for completion months ago, are still awaiting the material necessary to proceed.

NEW YORK STRONG FOR SECOND-HAND BRICK

Conditions in the New York market are best illustrated by the recent sharp jump in the value of second-hand brick. Sales were made at Vesey and Greenwich streets the past few weeks at $9.50 for motor truck loads of 3,000 brick. In one job at Maiden Lane and South street, where old buildings constructed of imported Dutch brick are being razed, the brick speculators were able practically to insist upon dealers taking accommodation loads of this material. The brick were broken, soft and small, being suitable only for wall filling. Second-hand brick is being brought in from the suburbs to meet the local demand.

The prices of Hudson and Raritan common-brick are being held at low figures now because of the backward building season. Hudson commons are quoted at $7.00 @ $7.50 and Raritan commons at $7.50. A sharp advance is looked for in these prices before September 1.

The Questions and Answers Department

is waiting for your letter outlining that problem, the solution of which is costing you a good night's rest. Expert advice on burning, drying or any other subject of interest to you is obtainable for a two-cent stamp.

Are You Going to Send That Letter?

THE plant is at Canton, Ohio, but the bricks are used pretty nearly everywhere. "Metropolitan" is stamped boldly on the side of every one of them—*burned in to stay*, because the makers' quality makes the brand stand for something. Now

"MARIONS" Take Out the Clay for 200,000 "Metropolitans" Daily

—and as a proof of their respect for the way our Shovels do things, the Company has recently bought another "Marion"—their fifth—with the encouraging comment that if they need more equipment, "more 'Marions'" would be their choice.

We'll be glad to supply you with the facts, without obligation—just ask for Booklet A120.

Marion

We Make Excavating Machinery of Every Description

Branches: Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY

Established 1884 MARION, OHIO

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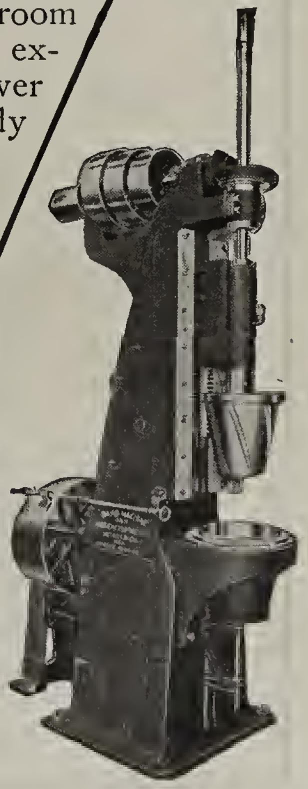


A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.

54-56 Jefferson Ave.
Detroit, Mich.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Permanent Record of Burns

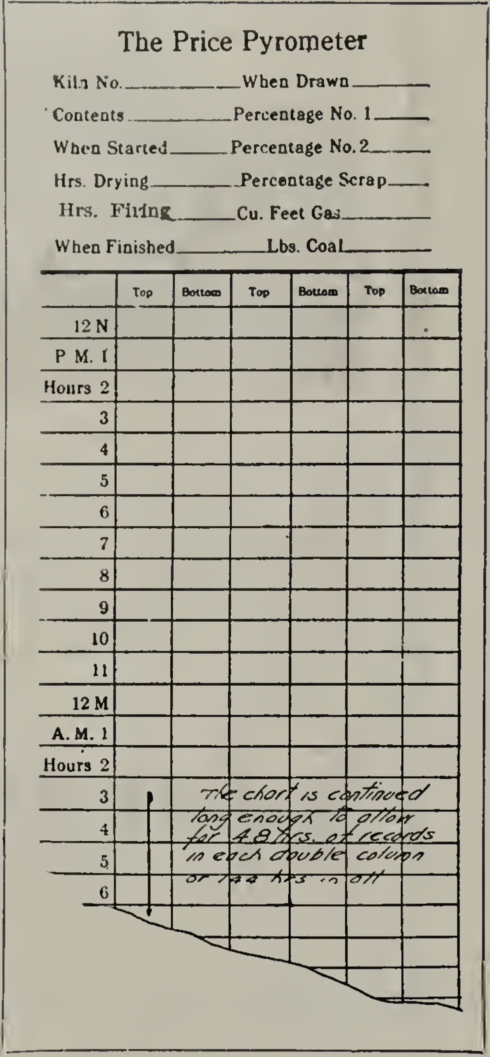
That's what you get when you use the

PRICE Pyrometers

No two Kilns burn exactly alike — that's why the old hit-or-miss method is so costly. But if you have Price Pyrometers we show you an easy way to record each burn of each Kiln (see the chart). You then know exactly how to apply the heat each time for each Kiln, so as to get the best results.

Let us send you the names of clay products manufacturers who are using the Price System —ask them whether it has paid them.

The Price Electric Co.
12367 Euclid Ave.,
Cleveland, Ohio



The Price Pyrometer

Kiln No.________ When Drawn________
Contents________ Percentage No. 1________
When Started________ Percentage No. 2________
Hrs. Drying________ Percentage Scrap________
Hrs. Firing________ Cu. Feet Gas________
When Finished________ Lbs. Coal________

	Top	Bottom	Top	Bottom	Top	Bottom
12 N						
P M. 1						
Hours 2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12 M						
A. M. 1						
Hours 2						
3						
4						
5						
6						

The chart is continued long enough to allow for 48 hrs. of records in each double column or 144 hrs in all

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.-CHICAGO, ILL.

The Cement for Paving Brick Grout

Lehigh is High in Strength, Uniform in Color and Fineness. You Don't Have to Guess with Lehigh.

Specify and Use Lehigh in all Brickwork. Remember the Mortar Joint is an Important Factor in the Wall.

Use Lehigh and Cease to Worry.

It Assures Satisfaction Under All Conditions.

LEHIGH CEMENT

Cement Grout for Permanence.

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Henry I. Ackerman, a brick manufacturer of Morton, Pa., died recently. Mr. Ackerman was fifty-nine years old and had been in business at Morton for twenty-three years.

Leslie C. Pierson, president of the New Jersey China Pottery Company, Trenton, N. J., and an active business man of that city, holding many public offices during his lifetime. died suddenly on July 14.

S. H. Belmont recently addressed the Provo (Utah) Commercial Club at one of its luncheons, telling of his trip in the East to purchase machinery for the greater development of the drain-tile and sewer-pipe business at that point.

William Clippert, a prominent brickmaker of Detroit, has a new bobby—that of yachting. Mr. Clippert recently purchased one of the finest boats that cruises the lakes, and all of his spare time is spent on the yacht. The week of the July 17 he spent at Put-in-Bay, participating in the annual regatta.

Arizona

The contract for the first enamel brick building to be erected in Tucson, Ariz., has recently been let to Reed and Odermatt, local contractors, who are going to use this material, together with terra cotta, in remodeling the Southern Arizona Bank and Trust Company's building at that point at a cost of about $35,000. San Francisco material is to be used in the structure.

California

The old plant of the Carnegie Company at Carnegie, Cal., is now practically dismantled. The machinery and much of the materials of this plant have been sold to California brick and tile concerns by Gladding, McBean and Company, the company which bought the Carnegie plant.

Peterson-Kartschoke Brick Company at San Jose, Cal., is having a very busy season, the company having found it advisable to add a department for manufacturing tile of different kinds. Tile machinery of the most efficient type is being installed and other improvements are being made.

The improvements being made at the plant of the Stockton (Cal.) Fire Brick and Enamel Company will increase its capacity fully one-third, making the monthly output a half million fire-brick. This plant operates steadily all the year around. Mr. Roberts, manager of the company, says business has been exceptionally good for the past two years, altho prices are somewhat lower than they should be to insure an equitable return upon the investment.

The announcement was recently made that the plant of the Silica Brick Company of Sacramento, Cal., which has been closed for some time, is to resume operations on a large scale within thirty days. S. W. Winsor, former superintendent of the plant, by a recent decision of the appellate court, has been denied his claim for $7,300, alleged to be due for breach of contract. He was hired for five years at a salary of $200 a month, but the plant closed down after he had served but one year.

Walter R. Simmons of Pasadena, Cal., has bought out the interests of his brother, Joseph Simmons, in the Simmons Brick Company. The deal is said to have involved a transfer of values amounting to quarter of a million of dollars. The transaction leaves Walter Simmons the owner of four-fifths of the entire stock of the corporation. The Simmons Brick Company is one of the pioneer brick concerns of Los Angeles county, having been established about thirty years ago.

N. Clark and Sons have been awarded the contract for the terra cotta to be used in building the new bank at Napa, Cal., and have just completed all deliveries of terra cotta for the Union high school at Red Bluff, Cal., the educational building at Eugene, Ore., and the Franklin school at Portland, Ore. This company has also been awarded two new contracts for supplying vitrified sewer-pipe for the city of Stockton, the new orders being for material to construct several additional miles of sewers at that point.

The McNear Brick Agency, San Francisco, Cal., has been awarded a number of important contracts recently, the largest of which is an order for 700,000 brick for the new addition to the Lane Hospital. This company is also delivering 400,000 brick for the Sachs Estate building at Pine and Sansome streets. The company has a large reserve stock of brick in San Francisco but business is slow with it, as with the other concerns in San Francisco on account of the building trades being tied up by the longshoremen's strike.

The bricklayers' union No. 9 of Sacramento, Cal., has announced a demand for an increase in wages to take effect after August 15. The wages wanted are $8 a day, instead of $7 as at present, for handling all brick and concrete material weighing more than fifteen pounds. The Sacramento brick people state that this increase is impossible under existing conditions.

A new concern to enter the San Francisco building materials field is the Funsten Clay Products Company, which has opened an office at Room 406 Sharon Building, 55 New Montgomery Street. The manager of the new concern is J. J. Funsten, formerly local salesmanager for N. Clark and Sons. Mr. Funsten has been in the clay products business for twelve years and is well known in the trade up and down the Coast. He has a very attractive line of samples on display. He handles face-brick of different classes, building tile of all kinds, general terra cotta products and other clay products for the building trade.

Colorado

The Durango (Colo.) Brick Company is working to capacity in manufacturing one million brick for a new high school to be built at that point.

Connecticut

Fire, believed to have been caused by sparks from a locomotive, destroyed a house and shed on the Donnelly Brick Yard of New Britain, Conn. However, the damage is small, being estimated at about $500.

Connecticut brick manufacturers still complain of a shortage of help and in many sections the outlook is for a small output for this reason. Nearly all of the yards have plenty

DU PONT
EXPLOSIVES

Practically Used in Clay Pits will Enable Your Shovels to Move Clay Easily and Quickly

Write today for FREE BOOKLET telling how to practically use DUPONT EXPLOSIVES in your clay mine and pits.

ADDRESS DEPT. 419

E. I. du Pont de Nemours & Co.
Powder Makers Since 1802
WILMINGTON, DEL.

WANTED

5000 Brick and Tile Manufacturers

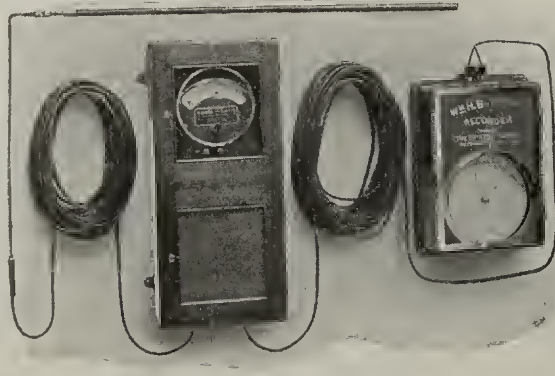
Who are willing to be shown how to save time, labor and fuel (some makers say 50 per cent) by using **Hooks Improved Up and Down Draft Kiln.** We also have a **"Grateless Furnace Dry Kiln"** that is cheap and economical to built and operate.

Fire Brick and Kiln Iron at the very lowest price. Just fill out, detach and mail this—

COUPON

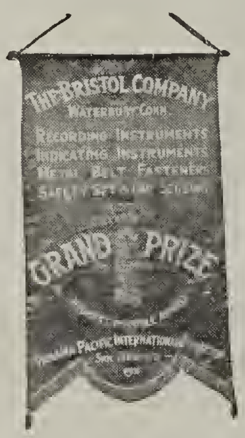
OHIO KILN CO., VIGO, O.
Without obligation or expense
"Show Me."

Name ....
Town ....
State ....



Bristol's Pyrometer Installation

For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.



Write for Bulletin 205

THE BRISTOL CO.
WATERBURY, CONN.

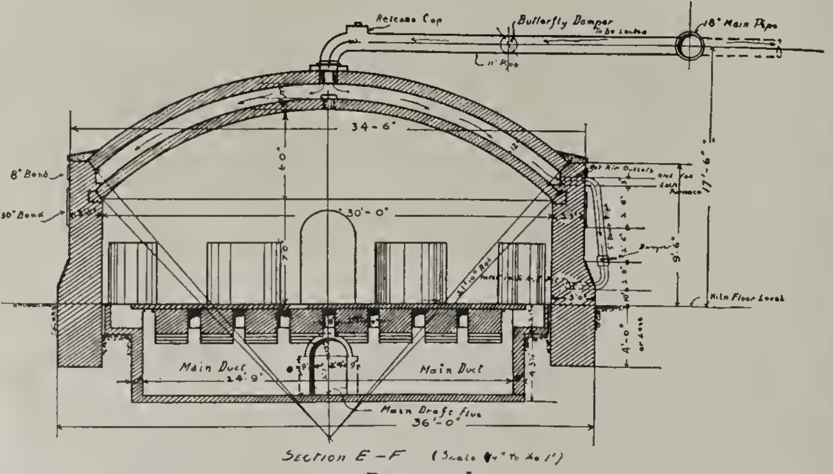
BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO

We Don't Disturb Your Present Kilns

THE McManigal Super-Heating System can be applied to the kilns you already have—that's one advantage.

¶Yet there are many other good reasons why you should adopt the McManigal System—it protects the fire brick crown from outside cold—it collects and utilizes the enormous amount of radiated heat—there is perfect control of fires with a big saving in fuel and time.

¶Let us send you information and figures showing what we are doing for others.



Patented

The McManigal Grateless Furnace Company
LOGAN - - - - OHIO

of orders, but the situation as regards help is such that many of them may go unfilled from present indications.

Delaware

The capital stock of the Cuban Silica Brick Company has been increased from $350,000 to $1,250,000 and the name changed from the Cuban Silica Brick Company to the Cuban Silica Brick and Glass Company, operating under the laws of the state of Delaware.

District of Columbia

The Purchasing Officer of the Panama Canal is sending out specifications for vitrified sewer-pipe bids, which are to be opened in Washington, D. C., on August 7. He is asking for bids on 15,000 linear feet of six-inch vitrified sewer-pipe; 10,000 linear feet of eight-inch; 5,000 feet of ten-inch; 3,000 feet of twelve-inch; and 3,000 feet of fifteen-inch. He is also asking for bids on 150, 6x6x6-inch, forty-five-degree vitrified sewer wyes and fifty 8x8x6-inch.

Idaho

The plant of the Emmet (Idaho) Brick Company, owned by F. E. Graham, is now in operation. An order for six hundred thousand brick is being filled by the newly purchased plant and, in order to handle this and other business, Mr. Graham will run a double shift.

Illinois

An order for 800,000 "pavers" was recently received by the Albion (Ill.) Vitrified Brick Company, to be used in the paving of a mile and a half stretch of Albion highway.

The St. Anne (Ill.) Brick and Tile Company resumed operations recently, following a week's shut-down for repairs. Among other improvements made was the complete electrification of the plant, 8,800 volts now being needed to operate the machinery. This company is enjoying a very prosperous season.

Brick are now being manufactured at the new $100,000 plant of the Barron Brick Works at Roanoke, Ill., the first burn having recently been made. The plant is not as yet finished, several more months being required for its completion, but the work is far enough advanced to permit the manufacture of brick and other clay products at the present time.

The Richards Brick Company of Edwardsville, Ill., recently purchased 62.66 acres of ground lying adjacent to its plant. This purchase will insure the continued manufacture of the high class brick for which the Edwardsville company is known, for at least another thirty years. The company was founded by Ben H. Richards and is now managed by his son, Ben Howard Richards—a familiar figure to all who attend the state and national clay conventions.

A force of twenty-five men is now at work digging the foundations for the buildings that will comprise the ninth plant of the General Refractories Company at Joliet, Ill. It is estimated that at least four months will be required to complete the plant. The constructional work is under the direction of C. C. Cheney, who is to be superintendent of the plant when finished and who formerly was connected with the American Refractories Company of Rockdale, Ill.

At a recent meeting held in Portland, Me., the directors of the Western Stoneware Company, whose main offices are located in Monmouth, Ill., elected the board of directors for the ensuing year. The old board, comprised of nine men, four of whom reside in Monmouth, was re-elected. J. B. Brown, H. E. Miller, W. P. Graham and I. F. Daines are the four men on the board from Monmouth, while H. R. Platt of Chicago, W. J. Spencer of Canton, H. Clarke of Peoria, W. H. Covert of Quincy and J. L. Scott of Macomb are included in the other five men.

Indiana

David A. Walter, city engineer of Columbia City, Ind., has opened a building material yard at that point and will handle brick, tile and other clay products, besides all other building supplies. Mr. Walter's establishment will be known as the Columbia City Building Supply Company.

Operations at the plant of the Jeffersonville Brick Company, across the river from Louisville in Jeffersonville, Ind., have been suspended because of improvements being made by the Pennsylvania Railroad at that point. The railroad company is rebuilding its bridge across the Ohio river and has taken an option on the holdings of R. L. Akers, proprietor of the concern. Mr. Akers is disposing of the brick on hand but meanwhile is marking time, waiting to see what will be the outcome of the railroad's plans. He has not decided what steps to take in case the railroad takes over the property.

Brick, as a paving material, is receiving a large amount of favorable attention in New Albany, Ind. One of the street improvement projects there this summer contemplates the resurfacing of Pearl street, between Spring and Main. This is a brick-paved thorofare, the oldest in the city and the paving which it is proposed to cover was laid twenty-four years ago. Traffic on that section of the street is heavy and has been during the whole period, and yet the pavement is in what is termed good condition. In fact it is so good that the property owners, who would have to pay for its improvement, are protesting against renewal. It is unfortunate that the plan is to merely cover the surface with asphalt or some similar material. Brick laid in this street were the John C. Porter brick, made at New Cumberland, W. Va.

Iowa

The Western Material Company of Waterloo, Ia., recently secured a large order for face-brick to be used in a new high school building which will be erected at that point.

A new $18,000 brick plant is reported to be under construction at East Fourth and Pavonia streets, Sioux City, Iowa, being built by the Mariner and Tupy Company of that city.

The plant of the Rockwell (Iowa) Brick and Tile Company has been sold to S. L. Davidson of St. Paul, Minn., who is planning to convert it into a machinery manufacturing plant.

The tile plant that has lain idle for many years at Harper, Iowa, is soon to be placed in operation. Messrs. Tom Marr and Walker, both of Richland, Iowa, will assume the management of the plant.

As a surprise to Iowa clay products manufacturers comes the announcement that H. L. McCombs has taken over the interests of M. W. Anderson in the DeSoto (Iowa) Brick and Tile Company, under which name the business of the company will continue. Both Mr. McCombs and Mr. Anderson are well known thruout the state, having been members of the state association and actively assisted in the propaganda that the manufacturers of the Buckeye state have made in the interests of burned clay materials.

Avoid Annoying, Costly Leaks

in the boiler room, or on any flanged pipe line or connection in the plant carrying steam, hot or cold water, etc., by the use of

JENARCO
Sheet Packing

A gasket of Jenarco placed between any flanged joint will make that joint absolutely and permanently tight. No escaping of steam, no damaging or costly leaks, no annoying dripping of water. Obtain through your regular dealer, either in gaskets cut to exact size and shape required, or in sheets 36 in. wide, any length required, all standard thicknesses.

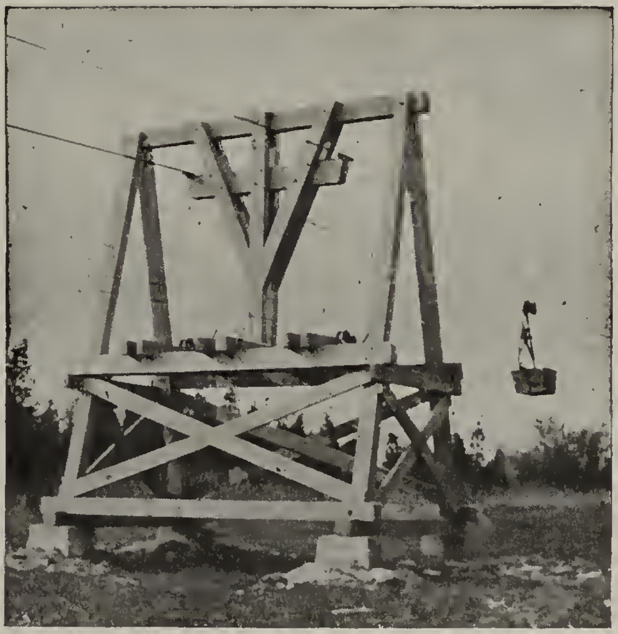
REG. U.S. PAT. OFF. TRADE JENKINS MARK *Jenkins Bros*

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W Lake Street, Chicago.
Jenkins Bros. Limited, Montreal, Canada, and London, E C England.

REG. U.S. PAT. OFF. TRADE JENKINS MARK *Jenkins Bros*

If the Grade is Sufficient—
Gravity Supplies All of the Power



B. & B. Friction Grip Aerial Tramway

requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

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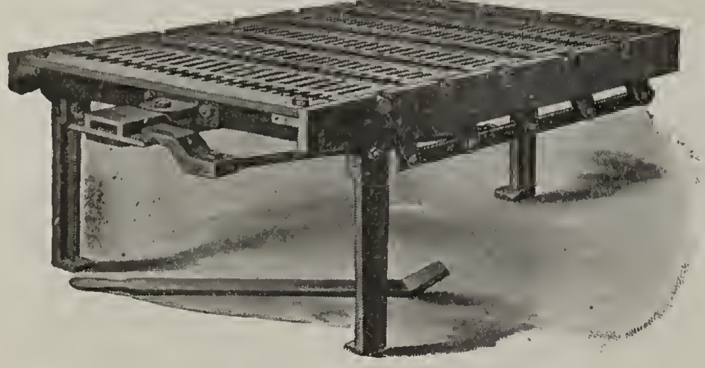

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A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

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The successful transmission of all possible power generated — depends in large part upon the belt used.
Most any old belt will do for a while—will act like a thorobred over the short distance—but it doesn't last, it soon stretches, sags, slips.

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RED STITCHED CANVAS
BELTING
has the service stamina built in. It goes over the long course.
It pulls—it lasts.

HETTRICK BROS. CO.
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HETTRICK

Kentucky

One of the jobs in prospect in Louisville, Ky., is that for the facing material of a large garage to be built on Guthrie street between Second and Third. J. J. Gaffney is the architect for the structure, which is to be faced with terra cotta and enameled brick. This is to be one of the most handsome structures of its kind in the city.

News from the retailers of Louisville, Ky., is scarce. Small orders are the rule, altho the dealers are working carefully on several large projects which are reported to be in prospect. There is a marked shortage in the Louisville field, it is said, of brick masons and some of the dealers are bemoaning this fact, since it rather retards sales.

The employers of Kentucky during the latter part of July filed acceptances of the new workmen's compensation law by the hundreds with the compensation board at the capital, Frankfort. Requests for blanks were numerous and indicated that there would be a large proportion of employers in all lines under the regulations when the law becomes effective on August 1, while others were expected to come in shortly afterward. It is considered that the law is a good one and that it will serve both employer and employe.

Operations are going forward at full blast at the plant of the Hillenbrand Brick Manufacturing Company, Louisville, Ky., the output being around 25,000 brick a day. Oscar Hillenbrand, a leading member of the company, has been out in the state on a selling trip and has been getting the business. The company is securing a good deal of business in the way of orders for face-brick for bungalows, which are becoming exceedingly popular in this part of the country. The plan put into practice a year ago by this company, of sorting the face-brick as they come from the kilns, is being continued and is proving practical and serviceable, as well as economical, from the point of handling costs.

A development of the past month which is of unusual interest is the retirement, at least temporarily, of P. M. Crane from the brick business. The East End Brick Company, Louisville, Ky., of which he was secretary and treasurer during its existence, having exhausted its own clay deposit and having bought as long as that plan was practical from the immediate vicinity, has closed down. The office is being held open for the time being until the stock of brick on hand is sold, after which the company, it is stated, will be discontinued. For the past thirty years Mr. Crane has been one of the best known figures in the local brick trade. He was for a long time with the old Hydraulic company. Mr. Crane has gone into the retail coal business and is making good.

The plant of the Coral Ridge Clay Products Company, Louisville, Ky., continues to operate to capacity, according to James T. Howington, salesmanager. Deliveries are being made regularly to several local jobs, while the company is also shipping both north and south, where several good orders have been landed. Mr. Howington states that the company is not suffering from the labor shortage which, in some lines, has been making a good deal of trouble. By a system of contracts with local teaming concerns at consignee points, the difficulty of obtaining labor to unload cars is obviated so far as his company is concerned. The coal trade in Kentucky has had to stop selling domestic sizes for the simple reason that it is impossible to find labor to unload the cars when they are delivered to the purchaser.

Massachusetts

A two-alarm fire at the Parry Brick Company's yard in Chelsea, Mass., at midnight on July 15 destroyed the boiler house and caused a bad scare in the neighborhood. While the monetary loss was not great—being estimated at $1,500—the destruction of the building caused some interference with operations at the yard. The boilers in the building were used to operate the cable railway employed in carrying materials to different parts of the yard. The fire is believed to have been started by hot ashes.

Michigan

The brick and drain-tile plant formerly operated at Clio, Mich., by Thomas Oliff, has been purchased by W. Shoalls, who has moved to that point from Detroit, Mich., with his wife, to assume personal management of the business.

The Colonial Brick Company, with offices in the Penobscot building, Detroit, is having plans drawn for a fine display to be located in the new quarters of the Builders' and Traders' Exchange, in the same building. The exhibit will consist of a fire-place, arch doorway and other features showing face-brick.

There is considerable agitation on at the present time in Detroit for the annexation of that portion of Springwells which extends as far as the William Clippert brick plant. The brick manufacturers favor this annexation to Detroit. One plant of the Mercier, Bryan and Larkins Company would be included in the annexation if it is put thru.

Speaking for the Detroit Brick Manufacturers' and Dealers' Association, William B. Wreford, manager, reports: "The demand for brick is as brisk as ever, but local manufacturers have caught up with it so that it is no longer necessary to buy large quanties of brick from outside sources to supply this demand. All of our manufacturers have increased their facilities, and are turning out many more brick than they did six weeks ago. All of the brick produced thus far has been sold readily, so active is the demand in Detroit. The volume of new building continues to increase, and there are still hundreds of new structures that have not been started and upon which architects are still working."

J. M. Beville is now in charge of the face-brick and terra cotta department of the United Fuel and Supply Company, Free Press Building, Detroit, succeeding H. A. Walters, who has resigned. Mr. Beville was formerly in the brick business in Louisville. Five years ago he went to Cleveland and for three years was city salesman for the Hydraulic-Press Brick Company and for two years traveled for that concern covering Ohio, West Virginia and Kentucky. When interviewed recently, he said: "Business is certainly splendid. The way things look now more brick will be sold this year in Detroit than last year—referring to face-brick. As I understand it thirty-five million face-brick were sold in Detroit in 1915. We alone are figuring on selling between ten and fifteen million this year. There is hardly a building, whether it be for business purposes or for a home, that does not use some face-brick."

Missouri

Two fires, starting almost simultaneously at widely separated parts of the No. 4 brick warehouse of the Hydraulic-Press Brick Company, St. Louis, Mo., caused a loss that is estimated to be about $3,000. According to the belief of George A. Bass, president of the company, both fires were of an incendiary origin.

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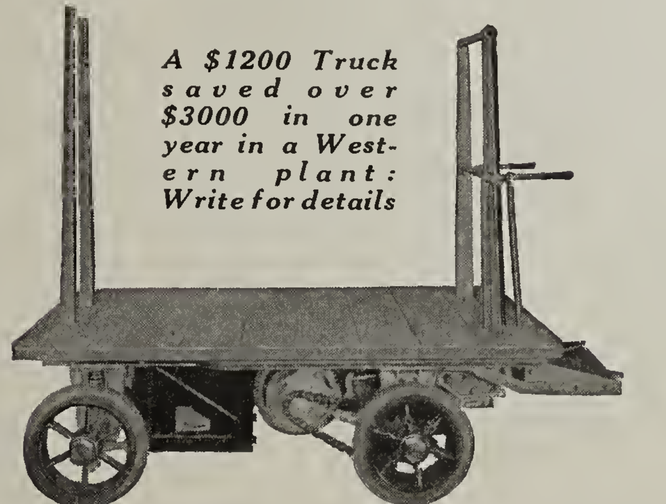

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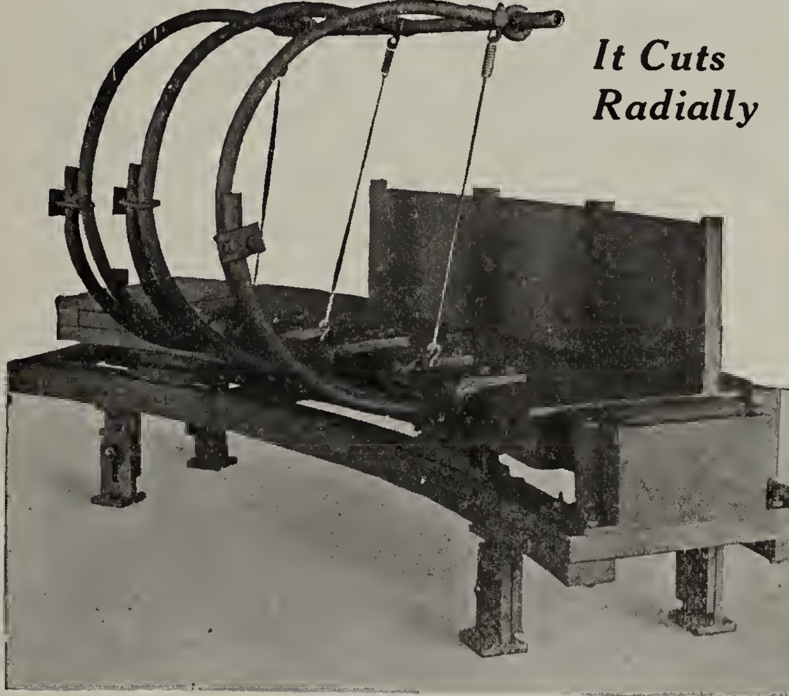

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Brand New Shops. Chock full of industrial activity.

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BEIGHLEE "THE PYROMETER WITH A CONSCIENCE"

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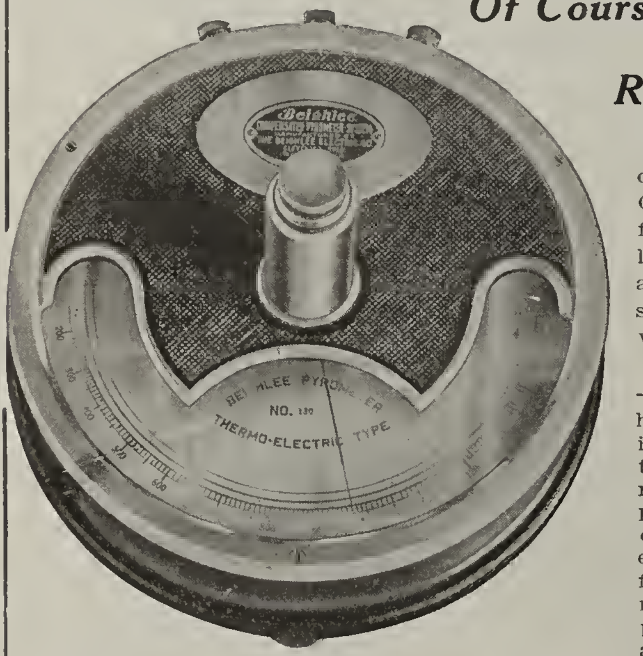

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With all of this they are dependable and accurate.

Beighlee instruments are big and impressive—in a distinct class by themselves.

Let us send you the proofs—today.

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HERMAN A. HOLZ, Hudson Terminal Bldg., New York City, Representative in New England States.

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H.—the **dependable brand.**

Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. New York

Chicago, Ill.
East Liverpool, O.
St. Louis, Mo.
Kansas City, Mo.
New Orleans, La.
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Boston, Mass.

We carry a complete line of high grade chemicals for the clay industry

Montana

With the machinery for the Roundup (Mont.) Brick and Tile Company on its way, it is expected that soon the product of that concern will be on the market. William Storer, superintendent of the plant, is now on his way back from a trip to the East, made in company with W. R. Evans, secretary of the new company, for the purpose of buying machinery. Several local building projects are said to be waiting the completion of the plant in order to use its products.

Nebraska

Fire, caused by sparks from a newly lighted kiln, recently destroyed the brick plant operated at Arlington, Neb., by Fred Frinkman. The loss incurred is estimated to be about $2,500.

New Jersey

R. U. Rue Company is the name of a new concern formed at South Amboy, N. J., with a capital stock of $50,000. The company will mine and sell clay and has been incorporated by Richard U. Rue, Alfred T. Kerr, Blanche C. Rue and Carrie Kerr, all of South Amboy.

New York

The Kingston Pike Brick Company has been incorporated at New York City with a capital stock of $100,000 to manufacture brick.

For the purpose of improving trade conditions, the Brooklyn and Long Island (N. Y.) tile dealers have organized the Mantle and Tile Dealers' Association of Brooklyn. The directors are George Miles, Morris G. Williams and Samuel N. Schechter, all of Brooklyn.

The Estruscan Pottery Company is the name of a newly incorporated concern of New York City, formed for the purpose of manufacturing brick, tile and terra cotta. The incorporators of the company are C. R. Frazer, H. A. St. George and W. G. Watson, the address of the last-mentioned being 41 Park Row, New York.

The Hocking Valley Clay Products Company has been incorporated at New York City with a capital stock of $100,000 for the purpose of manufacturing clay products, and to engage in other activities. The incorporators of the new concern are W. J. Kingden, 51 Chambers street, New York City, S. U. Hopkins, 554 First street, Brooklyn, and E. Ward of 82 Morris street, Yonkers, N. Y.

North Dakota

The Des Moines Clay Refining Company, operating a kaolin mine at Lead, N. D., is planning to erect a drying shed at that point and to install a grinding machine for the purpose of preparing the clay before shipping it to the company's plant at Des Moines, Iowa. This preliminary treatment will not only deliver the clay to the plant in a much better condition than heretofore, but will effect a considerable saving in the shipping expense due to the fact that all of the water content, that has previously been adding to the freight charges, will be removed and the clay shipped in a perfectly dry state.

Ohio

Plans are rapidly developing for the construction of the big brick and sewer-pipe plant of the Wolf-Lanning Clay Company at Uhrichsville, Ohio.

The Hand Clay Company has recently been incorporated at Canton, Ohio, with a capital stock of $5,000 to manufacture clay products. C. Hand, J. M. Hand and V. H. Visscher are interested in the new company.

The Nelsonville Brick Company, which has sales offices in the Wyandotte Building, Columbus, Ohio, will be compelled to move because of the sale of that building to the State of Ohio for office purposes.

The car supply to Ohio clay products companies is better than it was a month ago. At the present time there is but little complaint of shortage. Shipments are more prompt than formerly and the situation as to cars is growing better.

J. M. Schooler has been appointed receiver for the Phillips Tile and Marble Company of 254 East Town street, Columbus, Ohio, in a friendly suit brought by the stockholders for the purpose of bringing about a dissolution. The business is being continued by the receiver.

Members of the S. A. F. E. and the Supply Dealers' Board, Cleveland, Ohio, took a day off during the hot weather the latter part of July and indulged in baseball, tennis and other sports at the East Shore Country Club. There was boating, bathing and fishing for those who did not feel like working so hard. William Fay was amusement director.

Bids were opened on July 20 and 21 by the Ohio Highway Commission for the improvement of approximately 109 miles of roadway in about 40 counties in the Buckeye state. Quite a few of the contracts that will be awarded provide for brick paving. In most cases the work is to be completed during the present summer.

J. M. Adams, secretary and general manager of the Ironclay Brick company, Columbus, Ohio, which operates a large plant at Shawnee, says the demand is holding up well during the heated period. Prospects for the future are said to be good. Mr. Adams says the worst feature of the manufacturing end of the business at the present time is a shortage of labor.

Mr. Harrison of the Gaddis-Harrison Company, Columbus, Ohio, brick dealers, reports a steady demand for face-brick as well as backing-up materials. He says the greatest difficulty is to get sufficient stock to take care of the business. The freight car supply is not as bad at this time as it was, altho some delay occurs now and then.

The demand for face-brick thruout Ohio and Michigan is holding up well despite labor troubles in the building trades at certain points. There are no labor troubles in Columbus, where building operations are especially active. One of the tendencies of the present time is the demand for smooth face-brick as opposed to the run towards "rugs," which has been noticeable for the past few years.

The position of manager of the brick department of the Hocking Valley Products Company, Columbus, Ohio, recently held by Carl C. Walters, will go to Howard F. White, who has been a salesman attached to the Columbus office. The announcement will be made just as soon as Daniel Reagan, president of the company, returns from an eastern trip. Mr. White reports a good demand for brick with excellent prospects for the future.

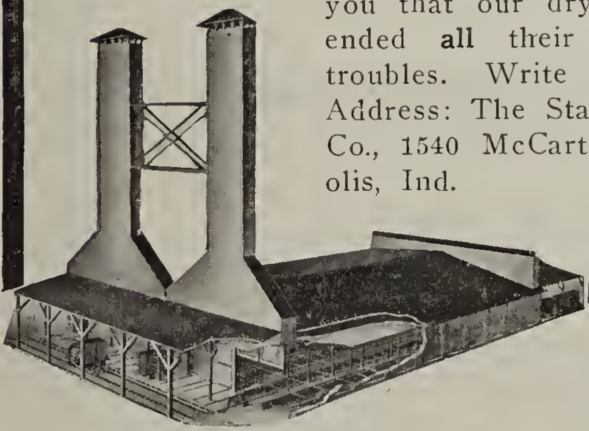
LeRoy W. Gaddis, president of the Gaddis-Harrison Company, brick dealers in Columbus, Ohio, reports a good demand for brick of all kinds. He said recently: "We had a larger business during the month of June than ever before in the history of the company for any one month. Prospects for a large total in July are very bright on all sides." Mr. Gaddis also believes that trade during the fall months will be good.

George Rinkenberger of the Brick Sales Company, Cincinnati, stated recently that, while small jobs seem to be fairly plentiful, business, generally speaking, in building is not especially active, repair and reconstruction work being in larger volume than new jobs. This has been reflected in the brick end of the company's business, serving to cut orders down to

The Standard Drier

Now and for 30 years the leading exponent of the Natural Draft Steam Drying System for brick and all clay products.

Our catalog is yours for the asking. It should be read by every brick manufacturer who has drying troubles of any kind. Standard Drier users will tell you that our drying system has ended **all** their former drying troubles. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



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"It is but just that we state our success with Cling-Surface. Before its use, we seriously contemplated buying a new engine, because we did not have enough power to run our drop-hammer. After lengthening our belts and applying Cling-Surface, however, we obtained more than enough power to run our hammer and all our other machinery besides."—Wm. Didier Mfg. Co., Racine, Wis.

Now that Cling-Surface in its new fluid form requires no preliminary heating, greater convenience of application adds another inducement to take advantage of its preservative and power-saving qualities.

Send us a trial order for a working package.

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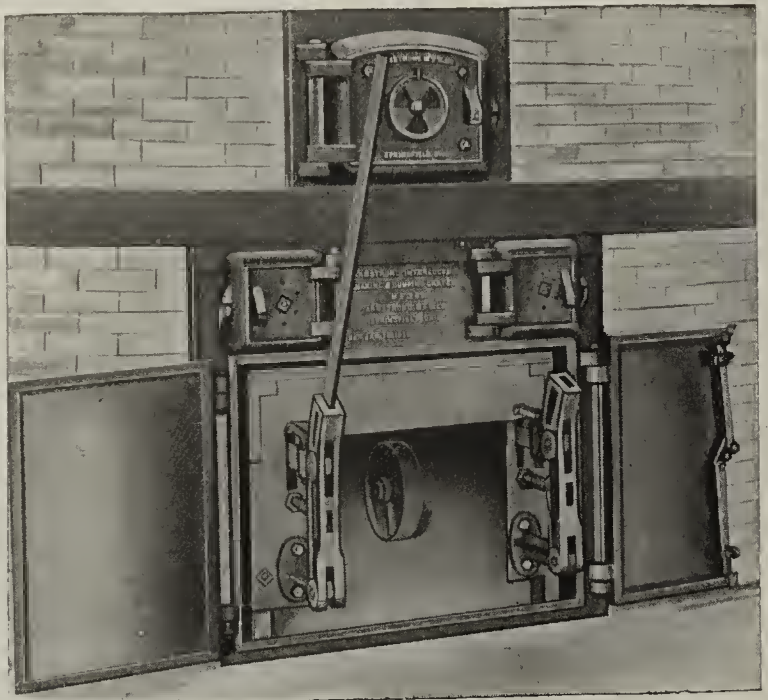

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Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

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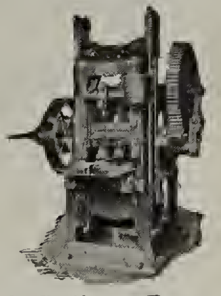

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Cars of all kinds

Every piece of equipment is built of the best material by the best mechanics obtainable. The Lakewood Line is Built to Last.

Ask for Catalog No. 11

The Lakewood Engineering Co.
Cleveland, Ohio
New York Philadelphia Pittsburgh Baltimore Chicago

a lower level than is usually looked for at this season of the year.

Shortage of labor is the bane of the clay products industry in Ohio at this writing. On every hand managers of brick plants, pottery and tile concerns are saying: "We are suffering from a shortage of labor." The mobilization of the state militia made the situation much worse than it was before the call to service was issued, but it was already quite noticeable, even at that time. As a result of the labor shortage there is a curtailment of output at most of the plants in the state.

Whether or not there is a good demand for brick and other building materials this summer in Cleveland is best proved by figures recently compiled for R. C. Mitchell, general manager of the Farr Brick Company. Mr. Mitchell finds that his firm was about 30,000,000 brick behind on orders at the end of July. This is believed to be the best indication of how business is running in the "Sixth City." Labor conditions at the plants of the Farr company have been improved of late, but there are still plenty of openings for a large number of workmen.

John M. Stoner, president of the Cincinnati (Ohio) Clay Products and Supply Company, reports that business with his company is good and that a number of large contracts have been recently secured. Among these are the following: Reading school, 100,000 brick; Camden school, 100,000; Norwood M. E. church, 80,000, and St. Cecilia church, Oakley, 50,000. Most of these are for immediate delivery, and this means that the company is having plenty to do during the hot weather in speeding up shipments from the plants and seeing that they reach their destination in good shape.

Another denial that the prices for brick and other materials are a factor in causing building operations to be held back, is made by F. H. Chapin, manager of the Hydraulic-Press Brick Company, at Cleveland, Ohio. "As a matter of fact," Mr. Chapin says, "the prices of brick and similar materials have not advanced in proportion to the cost of other commodities. An advance in the price of brick must come, however, because of the increased cost of labor and raw materials, which are higher by fifteen to twenty per cent. than a year ago."

There has been some complaint of late around Cincinnati to the effect that building is not as active as it should be, various causes being given for this condition. Higher prices for material and labor are chiefly blamed for conservatism among builders, it being estimated that, on account of the high prices of lumber and hardware, a house of any size costs at least ten per cent. more to build now than a year ago. Money is plentiful for building purposes, but builders are holding off, confident that they will be able to build later for less money. Labor is scarce and high, and this is a factor of considerable importance in the let-up.

Opening of the new Hotel Olmsted, Cleveland, Ohio, has attracted attention to two clayworking concerns. The Queisser-Bliss Company supplied all of the face-brick used in the building, the base granite all terra cotta trimmings, sidewalk lights, steel doors and metal windows. A feature of the hotel is the Rookwood Fountain Room. The fountain which gives this room its name is said to be one of the largest single pieces of pottery ever turned out by the company. It is twelve feet high, with a water basin extending six feet from the wall. The figures represent Pan and another figure transfixed by the music from Pan's pipes.

Preparations are being made by Cleveland (Ohio) brick-makers and manufacturers of other burned clay building materials for the National Complete Building Exposition to be held in New York, March 5 to 11. The exposition, which will be held in Grand Central Palace, will be a follow-up of the Complete Building Show held in Cleveland last February. It will be held under the auspices of the National Complete Building Show, of which Charles P. Salen, of Cleveland, is manager. General Manager R. C. Mitchell, of the Farr Brick Company, Cleveland, is a member of the company. A large representation on the part of brick and tile manufacturers will be made at the show.

Oregon

Two contracts to furnish brick and hollow-tile for the new postoffice building and the high school at Roseburg, Ore., have been awarded to the Fairmount Brick and Tile Company of Eugene. This company is planning to make an extension to its plant which will be equipped with the latest machinery.

Pennsylvania

James S. Woods, acting as solicitor for the Mount Union (Pa.) Silica Brick Company, has filed a petition asking for a decree of dissolution.

The Darlington (Pa.) Brick and Mining Company is contemplating the purchase of an electric motor truck to be used in drawing its kilns and in loading the ware on the railroad cars.

Fire, started by sparks from a burning kiln, caused the destruction of a large shed on the plant of the Flurrie Brick Yard at New Cumberland, Pa. Only the strenuous fight made against the flames saved the remaining buildings on the yard.

The Colonial Brick Company has been incorporated at Youngsville, Pa., with a capital stock of $65,000 by C. E. Foster, Asher Johnson and E. C. Swanson to manufacture brick and tile. The main office of the company is located at Bradford, Pa.

Several improvements have been made on the plant of the Beaver Clay Products Company of New Galilee, Pa., during the past year. An elevator shaft has recently been constructed that encloses two bucket elevators leading to the dry pans.

George M. Keiser, a brick manufacturer of Topton, Pa., expects to turn out a total of 650,000 brick this summer, of which 350,000 have been finished. Building operations at Topton, Kutztown, Fleetwood, Bowers and Lyons, have given him an excellent market for his brick.

Brick manufacturers of Pottstown, Pa., will have the busiest season this summer for years. This is due to the erection of more dwellings in the borough and to the erection of several large additions to local manufacturing plants.

John I. Fluke, Jr., of Norwood, Pa., has acquired an interest in the Montgomery Brick Company which operates a plant at West Point, Pa., that has an annual capacity of 6,000,000 brick. Mr. Fluke is secretary and treasurer of the company and H. W. Willett is president and general manager.

Building operations are being pushed with all possible speed in Allentown, Pa., and brick manufacturers in that section of the state report a large demand for their ware. In addition to industrial establishments that are extending their plants, news comes to the effect that several large brick apartment houses are now in the course of construction.

About the only kind of city contract work which is under way at this time is the construction of modern

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sewer systems and, as a result, those members of the trade manufacturing sewer-brick report a heavy demand for their product. Taken as a whole, the situation in this section of the country is one of satisfaction and a strong feeling of optimism predominates thruout the trade.

John C. McAvoy, secretary of the McAvoy Vitrified Brick Company, 1345 Arch Street, Philadelphia, announces a quiet demand for paving-brick, but declares that the demand for sewer brick has been of such a nature as to cause the operation of the plant to capacity. Mr. McAvoy is of the opinion that members of the trade in this vicinity will experience a most profitable fall season.

The Pennsylvania Public Service Commission approved a contract between the city of Reading and the Reading Transit and Light Company of Reading, Pa., recently, for the paving of certain streets. The Transit company is responsible for paving between its street car tracks on these thorofares, and a distance of eighteen inches on each side, approximately a width of eight feet. The proposed work will cost the company $24,000 and will require a large quantity of brick and other materials to complete it.

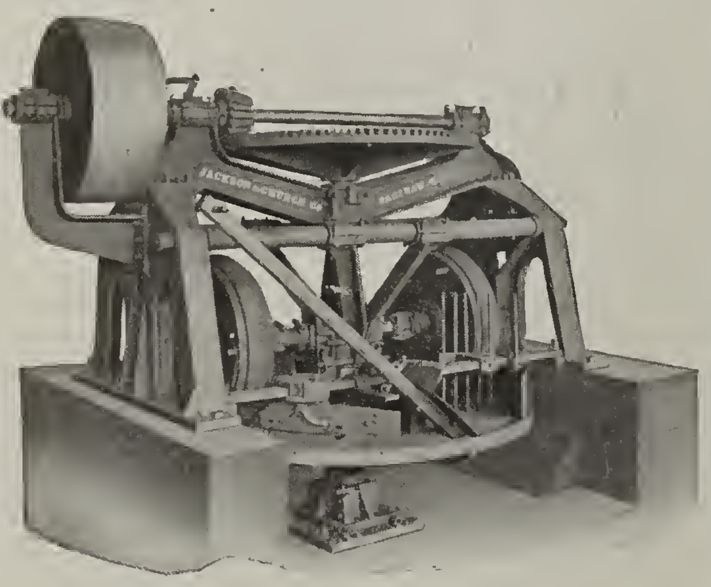
Manufacturers of building brick in Philadelphia and vicinity report a good volume of business during the past several weeks. This is largely due to the fact that very prosperous conditions are prevalent in this section of the country and large industrial establishments are continually erecting additions to their plants. These additions are, for the most part, of brick construction and this, together with the fact that many brick dwelling operations are under course of completion, has caused a large demand for building brick.

James Florey, a brick manufacturer living at Bryn Mawr, Pa., was awakened the other morning by noises in his stable. When he looked out the window he saw three young men leading two prize ponies, fully saddled and bridled and several other animals from the stable. Florey and his son, George, scared the would-be thiefs away by shouting from the window. They fled to a horse and wagon outside the place and hurried away. George Florey, as soon as he was dressed, set out after them in a fast automobile, but was unable to pick up the trail.

The Kutztown (Pa.) Brick Company has bright prospects ahead. It has made three-quarter of a million brick this season and all of these, with the exception of about 100,000, were used right in Kutztown. The company expects to make a million more brick before closing for the winter season. One kiln is now being emptied which contains almost 200,000 brick. Building operations in the towns along the East Pennsylvania Valley have been booming and many new houses and factories are being erected in which brick are used exclusively.

Business is not of a very prosperous nature with the manufacturers of vitrified paving-brick in Philadelphia. This can be attributed to the fact that municipal finances at the present time are considerably entangled and there is little or no money on hand with which to push forward any street improvements. However, the outlook for the future is very bright and it is expected that as soon as the huge loan being floated by the city is put over there will be plenty of work on hand and the manufacturers of vitrified brick will be forced to operate to capacity in order to supply the demand for that product.

Mayor Smith of Philadelphia has decided that he wants a special committee named to devise regulations for the



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Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

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Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

adoption of the "Zoning Act," which is to give the city control over the location, size and use of buildings to be erected within its areas. This measure was approved in May, 1915, but when its provisions were sought to be enforced by the Fairmount Park Commission there was considerable criticism from builders that it would work a hardship. The mayor has had a report made by a special committee of the Board of Surveyors, which recommends the appointment of a commission.

Rhode Island

The Barrington (R. I.) Steam Brick Company has about completed the reconstruction of its buildings that were destroyed by fire some time ago. While not entirely finished, the work is at such a stage as to permit the manufacture of brick and it is expected that the kilns will be under fire very shortly.

Tennessee

J. S. Crump, of Morristown, Tenn., Box 229, and associates are contemplating the establishment of a brick plant at that point and are inquiring for prices and data on steam-driven equipment.

According to A. B. Adams, assistant general manager of the Key-James Brick Company, Chattanooga, Tenn., that company has recently secured orders for several carloads of brick for delivery at Madison, Wis., the business being placed with the Wisconsin Brick Company of Madison. Altho this company has made numerous shipments to Cincinnati and to adjacent territory in Indiana, this is the first shipment the company has ever made to a point so far north.

Texas

Articles of incorporation have been granted in New Mexico to the El Paso Contotile and Terra Cotta Company, which will have its plant and general offices in El Paso, Tex. The incorporators are W. G. Jolly, N. A. Comstock and A. A. Murdock, all of El Paso. The statutory agent for New Mexico is J. H. McRhea of Alamogordo. The capital stock of the company is placed at $25,000. A plant costing $15,000 will be erected on Texas street, El Paso, and the most modern machinery installed.

Utah

New machinery is to be installed in the plant of the Provo (Utah) Pressed Brick Company that will enable it to manufacture large sizes of drain-tile and sewer-pipe. S. H. Belmont, manager of the company, on a trip thru the East recently, purchased the machinery. It is the opinion of Mr. Belmont that the shale found in Slate Canyon, near Provo, is an excellent material for making paving-brick and he is at present conducting experiments at his plant to determine its value.

Washington

The Chewelah (Wash.) Brick and Tile Company is building a new thirty-foot kiln, the draft for which will be supplied by a one hundred and twenty-five foot stack, also under construction. With the aid of these improvements, the officers of the company claim that 500,000 brick will be manufactured during the next thirty days.

Wyoming

Providing he is successful in selling his ranch, John Walton, owner of a newly built brickmaking plant at Auburn, Wyo., will give all of his time to supplying the local territory with the "best of all building materials." Mr. Walker has at the present time a kiln of 90,000 brick under fire.

A Better Dry House

If we did not make another claim about

The Proctor Dryer

except where we claim and prove that it has the most wonderful **speed** of any dryer in existence—we would be justified in our enthusiasm.

If we claimed only that it dried **safely,** we would be justified again—for it **has** control appliances that make it dry **safely** — with **speed.**

—and then again—there are numerous plants that would find it profitable—because it occupies such **small space.**

Three points of merit—any one of which makes THE PROCTOR peerless.

There are many other features almost as good as these.

The best part of it all is this — it has proved a success in actual operation.

THE PHILADELPHIA TEXTILE MACHINERY CO.

PHILADELPHIA, PA.

Hancock and Somerset Streets

Up-to-Date
or
Behind-the-Times
Which Are You?

You have modern labor-saving machinery in your plant. You can *make* brick, tile and other clay wares many times cheaper than our Grandfathers did. How much cheaper are you *burning* your ware? Our grandfathers used wood, you use coal—some saving there, but the majority of kilns today are very much like the down-draft kilns used 50 years ago. Of course you don't want to *experiment,* it's too costly, but are your kilns the most up-to-date, most economical system of the kind on the market?

Hook Down-Draft Kilns —a Proven Success

67 plants using them in NORTHWESTERN OHIO alone are saving MONEY and TIME for other men. Let us refer you to them. This system can make and save money for *YOU*. Better ware with less fuel and in less time is our Guarantee. Isn't it worth investigating? It will take only a minute right now.

Kiln Bands and Grate Bars for all kinds of kilns. Kiln Contracting.

HOOK PATENT KILN COMPANY
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Canadian Office: 250 Dufferin Street
Toronto, Ontario, Canada

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

A New Soft Mud Machine

"If at first you don't succeed, try again."

That's a good old trite saying, as is demonstrated constantly in every phase of our life work. It takes a lot of faith, confidence, grit and money to win these days, but anyone who has this combination is bound to succeed.

This is brought to mind most forcibly just now because of the news that after three years of hard, constant, but consistent work, D. J. Strickland of The Wellington Machine Company, Wellington, Ohio, has perfected an automatic soft-mud machine.

Mr. Strickland, during this period, has been in direct touch with soft-mud plants so that he has an unusually intimate knowledge of their requirements. Much of this time has been spent in the Cleveland district where Mr. Strickland was able to increase the output of several of the plants there from a capacity of 30,000 to 60,000 brick per day on each machine.

This new machine, it is claimed, is not merely automatic, but also extremely simple in operation. It is capable of being adapted to the small as well as the large yards, so that it is going to particularly appeal to every soft-mud brick manufacturer in the country. Mr. Strickland, the designer of this machine, is an engineer who has gained an enviable reputation as a designer of complete soft-mud clayworking plants, and is well known in every section of the country where soft-mud brick are made.

Solving the Help Problem

During the past two years there has been a rapid change in our emigration and immigration until now the former exceeds the latter. Furthermore, the small number of workers that is coming over soon seeks the labor market where wages are highest. As all of us know, this is in the plants making munitions or other supplies bearing on the disturbed conditions in Europe.

Scarcity of labor would not be quite such a hardship if it were not for the fact that never before in the history of this country has there been such a demand for help. As an example, the Du Pont companies, which ordinarily employ about 6,000 men, now have more than 60,000 on their payroll.

Others of our large concerns have increased their totals in like proportion, and even if the war should end immediately there is every reason to believe that labor

Schofield-Burkett Excavator at Plant of Garner Brick Company will continue in great demand. Our railroads, for instance, are unable to proceed with needed improvements and just as soon as the munition plants begin to release employes they will find work with the railroads or other industries that will pay a high wage scale because they are compelled to. Undoubtedly this condition will continue for a long time to come.

There is just one way for the manufacturer of clay products to offset this shortage of labor—install machinery and devices that make it necessary to employ less labor. And there is no better place to start than out in the pit where most plants are accustomed to use a large number of men

Many of the plants in New Jersey and the Hudson River district, as well as in the West have installed the Schofield-Burkett Excavator, made by the Schofield-Burkett Construction Company of Macon, Ga. By doing so they have found it possible to release men from the clay bank for employment in other parts of the plant. The Garner Brick Company of Haverstraw, N. Y., saved twenty men in this way, while scores of others have profited in like proportion.

Furthermore, this excavator has proven remarkably efficient in other ways, such as the mixing of various clays in proper proportions and in the most economical way. The Schofield-Burkett Excavator has surely been a boon for many plants.

Blue Book of Traffic

The whole subject of motor trucks is treated in a pictorial manner, one hundred and two photographic illustrations of trucks being shown, in the new Blue Book of Traffic, issued by the Federal Motor Truck Company, Detroit, Mich.

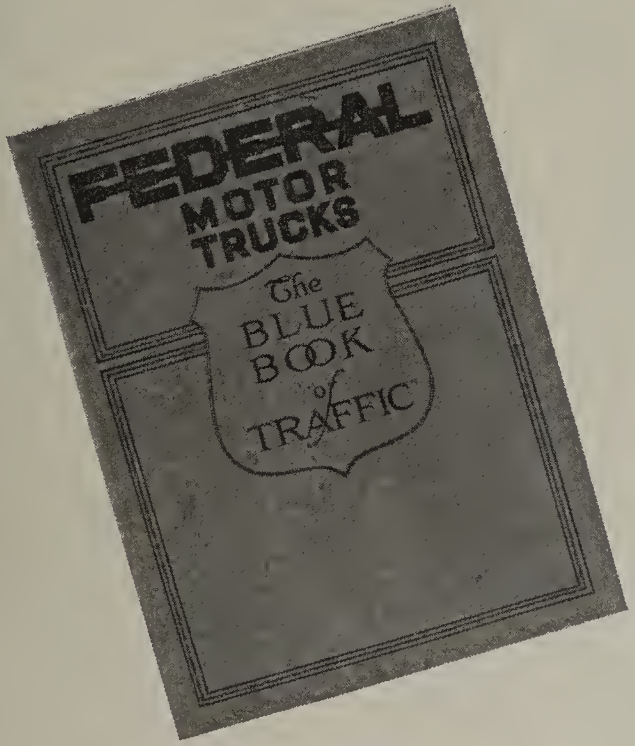
Photographs of worm-drive trucks only are reproduced, for altho several thousand Federal chain-drive trucks are in operation, that company is now manufacturing the worm-drive type exclusively.

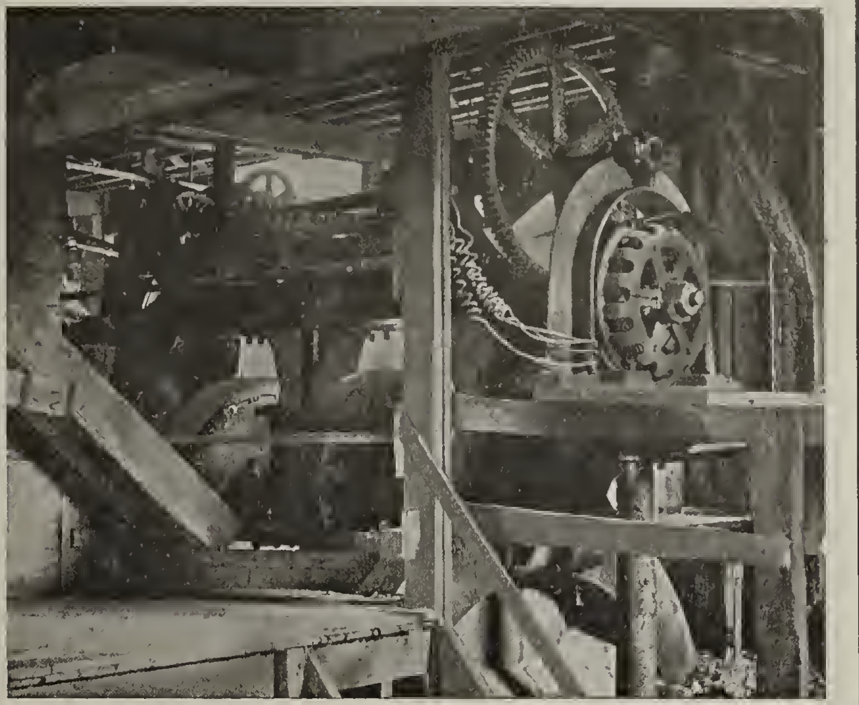
In the sixty-four pages between the covers of this new Blue Book over fifty different lines of business are featured, including several views of trucks hauling clay products; and in addition considerable space is devoted to detailed description of the various units and the construction of the Federal.

The book is a comprehensive treatise on motor trucks, compiled in such a manner as to make the subject an interesting one to the ordinary layman.

Are You Making Silo Blocks?

Whether you are, or are not, you ought to find out whether your clay is suitable for making silo blocks, because this is one of the best growing branches of the clay-products industry. Experiments have proved that silos made of the




Westinghouse Motor Driving Dry Pan

Are You Doing Something for Nothing?

Do you drive a long line shaft to operate a single machine? If so you are paying power bills for nothing.

Westinghouse Motor Drive

will enable you to increase your output—save transmission losses—prevents a tieup from line shaft bearing trouble.

It will pay you to investigate the possibilities of motor drive.

Send for Booklet 3072.

Westinghouse Electric & Mfg. Co.

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Sales Offices in All Large Cities 367

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

right kind of burned clay blocks give far better satisfaction than any other kind and the farmers are demanding the clay silo in preference to any other.

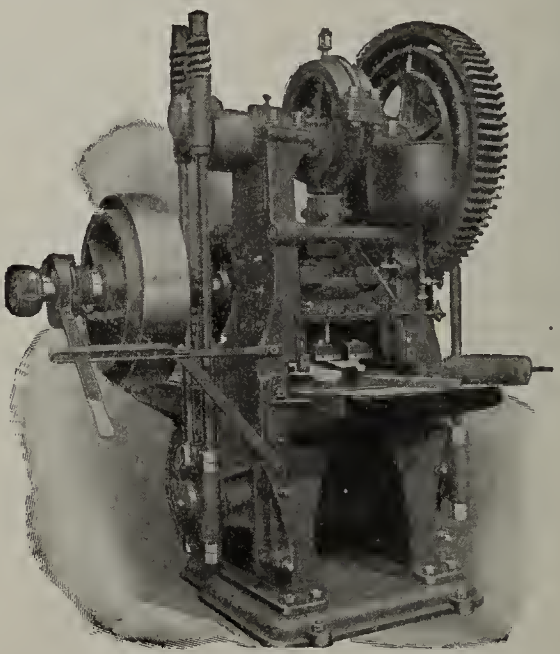
It's up to the manufacturers of brick and tile to supply this natural demand, and if they don't, other materials will be used. Fortunately, a larger number are taking up the manufacture of clay silo blocks each season, and those who get started right are never sorry they have done so.

With the right kind of equipment these blocks can be made well, and at a low cost, but you must be very sure of your equipment before you start. Otherwise you can not help but be disgusted with the attempt. The Crawford & McCrimmon Company at Brazil, Ind., where they are in constant contact with silo builders, have made a study of this question and are glad to share their information with any clay-products manufacturers. Their radial silo block cutting table is a result of much valued experience and should be in every properly equipped plant.

Repressed Paving Brick

During the past two years there has been a constantly increasing demand for paving brick made by the repress method, and today there are hundreds of miles of roads thruout the country made of repressed brick and giving remarkably fine service.

One reason for this increased popularity is found in the developments made by the Bonnot Company of Canton, Ohio, in their efforts to produce machinery that will make as good a paving brick as could be manufactured. Accordingly, the Canton Repress has been in greater demand than at any time in the past and this year has seen a large number of these shipped into every section where pavers are made.



Bonnot Repress

There are many important features that make for the superiority of the Canton Repress. One of these is an arrangement whereby the brick, after being pressed and the plunger raised to its proper place, are laid upon the off-bearing table, instead of being shoved upon it. This prevents the marring of the under surface of the brick. There are many other good points, too, and such proficiency will unquestionably add to the demand for repressed brick for paving purposes each year.

Have You Packing Troubles?

Your plant is the rare exception if you have had no packing troubles—or perhaps you are among those fortunate clay plant managers who have discovered the panacea for this bane of an engineer's life.

At some time or other nearly every clay plant has experience with packing that burns out, blows out, rots out, carbonizes, crumbles or decays. Yet there is absolutely no need to have all this trouble. Those who have used EBONITE Packing, made by the Quaker City Rubber Company, Philadelphia, (with branches in Chicago, Pittsburgh, and New York) speak very highly of it as a trouble saver. EBONITE Sheet Packing, Pump Valves and Steam Hose retain their "life" indefinitely because they are made especially for the class of trade that demands the very best. The same ring of EBONITE Packing may be used over again one or more times, because it remains soft and pliable, and it is unquestionably cheaper than many other brands of packing because of its economy in every-day use.

This company manufactures a complete line of mechanical rubber goods, belting, valves, hose and moulded shapes. They have recently issued a 60-page Handy Buyers' Guide that should be in the hands of every clay plant manager and engineer, because of the valuable information it gives.

Growing, Growing, Growing

The capital stock of the Morse Chain Company, of Ithaca, N. Y., has lately been increased from $400,000 to $1,500,000 for expansive purposes in the shape of new buildings and additions to old ones already under way.

The remarkable growth of the Morse Chain Company is best illustrated by the successive building operations made necessary by the demand for their single product—Morse Rocker-Joint Power Transmission.

From a fair sized factory at Trumansburg, N. Y., in 1904, just about the time when electric motors came into broad commercial use, the business commenced to spurt, and in 1906 was removed to Ithaca, to a new factory built especially for the purpose and twice as large as the former one. In 1912 it became necessary to again enlarge, and the floor space was more than doubled by additions.

Present plans contemplate again doubling the size of the plant; a large storage building being about completed, additions to the steel and wire mills and a new gas producer building being well under way, and another large addition soon to be started, to the main building, increasing its total length to more than 900 ft.

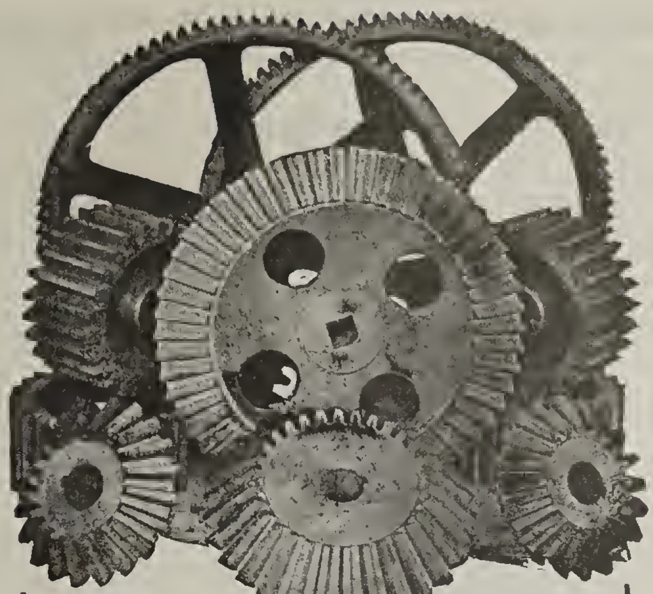
When these buildings are completed, the Morse Chain Company will have a total floor space of approximately seven acres, all of which will be devoted exclusively to the manufacture of Morse Rocker-Joint Power Transmission.

Samson Interlocking Tile

Samson Interlocking Tile are hard burned, hollow clay tile of special design for bearing walls, curtain walls, foundations and partitions in all kinds of buildings.

Owing to the peculiar design, walls built from this tile have several distinct advantages over every other type of wall construction. Samson Interlocking Tile build a home like

The Same Ring of Ebonite Packing May Be Used Over Again



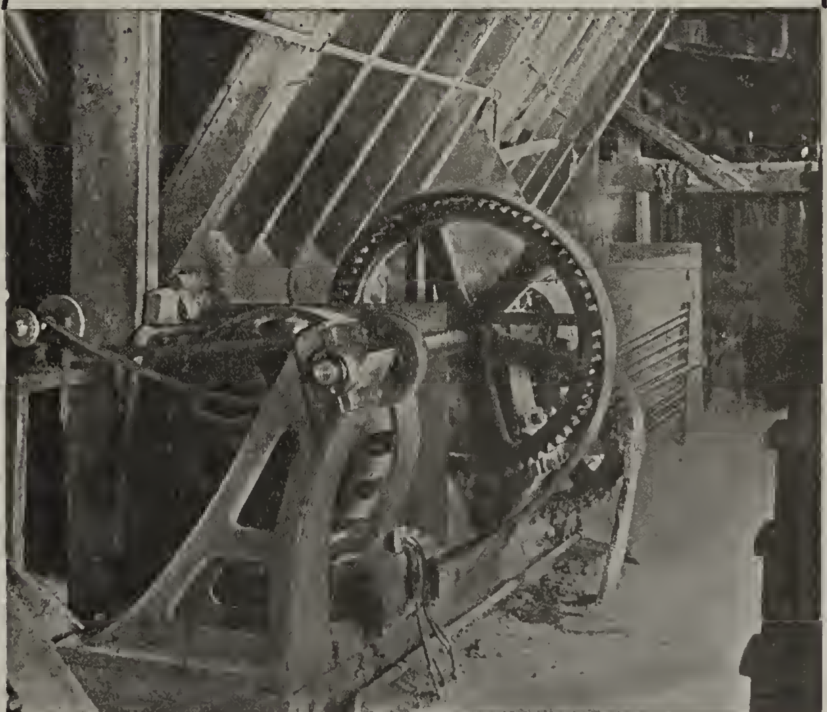
CUT STEEL GEARING

on all of your machines, enables you to carry the "peak of the load" and still have a good factor of safety.

Nuttall Gears

eliminate the grind and vibration of cast gears. They reduce breakage and plant idleness. They save from 20 to 40% of your power. Indispensable to the man who knows.

NUTTALL — PITTSBURGH



"Samson
Interlocking Tile"
Patented

In the above cut a construction of Samson Interlocking Tile is shown, which is the most modern form of construction for dry kilns, refrigerators and small residences, as it is almost impossible for moisture, heat, frost or sound to strike through walls built in this manner.

The construction on the left shows a wall commenced at 21 in. and reduced to 9 in. This is an exclusive feature of Samson Tile.

SAMSON INTERLOCKING TILE builds any thickness of walls without the use of other forms of tile, those and other exclusive features make this the most modern building material.

Three tests of SAMSON INTERLOCKING TILE, made at the University of Wisconsin, show respectively the following crushing strength: 1060, 1310 and 1040 lbs. per sq. in. This will give you some idea of the great load bearing capacity of "SAMSON INTERLOCKING TILE."

Write today for Manufacturing rights for unrepresented districts.

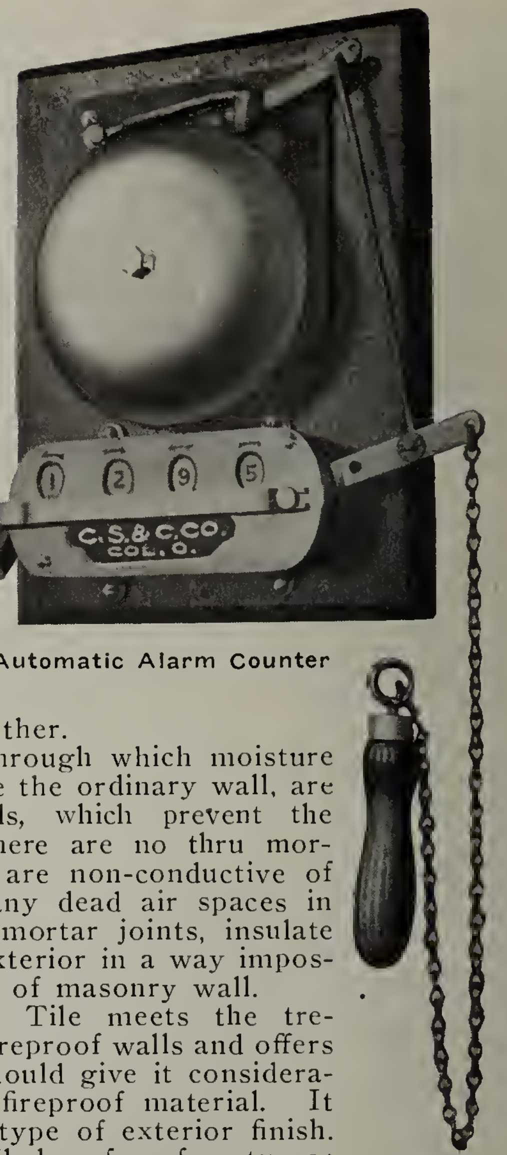
W. W. SMITH
Shallow Lake, Ont. Canada

a thermos bottle, — frost-proof, fire-proof and is a non-conductor of heat, moisture or sound.

Walls built of this tile have great supporting strength because webs stand directly over each other. Tests made at the University of Wisconsin, have shown a maximum crushing strength of 94 tons, 640 lbs., and a minimum crushing strength of 74 tons, 1,760 lbs. per square foot of wall surface. Walls have a great lateral strength against roof thrusts, wind pressure, etc., because each tile interlocks one with the other.

The mortar joints, through which moisture and dampness penetrate the ordinary wall, are interrupted by air cells, which prevent the passage of moisture; there are no thru mortar joints. The walls are non-conductive of heat or cold. The many dead air spaces in the wall and no thru mortar joints, insulate the interior from the exterior in a way impossible in any other type of masonry wall.

Samson Interlocking Tile meets the tremendous demands for fireproof walls and offers other features which should give it consideration over every other fireproof material. It can be used with any type of exterior finish. It gives a firm dove-tailed surface for stucco; it makes a dry, warm backing for brick or stone,—or it may be left exposed. By its special design it can be made with one smooth and one scored face and build either smooth or scored face.



Automatic Alarm Counter

How Do You Count 'Em?

A good many clay plants are still using the old unreliable tally-board, which depends on the lowest priced help on the place for accuracy. It is simply not within the range of possibility that such help will not forget to mark the tally, or purposely neglect it. You might just as well dispense with your desire to know how many loads are taken from the kiln as to continue the antiquated tally-board.

At very small cost, however, you can know absolutely how many loads are taken out in any given period. The Ceramic Supply & Construction Company of Columbus, Ohio, have made a study of the needs of clay-products plants in this connection and have devised a line of automatic and electric counters that are being used with most gratifying results.

One of these (illustrated here) is an Automatic Alarm Counter to be set up at the door of a kiln. As each load is taken out the wheeler pulls a lever which registers the load on the visible indicator, and which automatically rings the bell. Thus a wheeler who might "forget" is quickly caught in the act because his co-workers listen for the bell to ring.

At the close of each day the indicator tells exactly how many loads have been taken out—there is no figuring to do. So this automatic counter is a time-saver as well.

Have you shopped in our General Store? Others have done so to their advantage.

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BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The Summer Days Will Soon be Gone

and it will not be long before the delightful days and cool evenings of autumn are upon us.

¶ No doubt, during the hot weather you have not been giving the plant as much attention as, perhaps, you should have. Sort of been letting it run itself.

¶ But soon you will have to be figuring on how many more months you can operate to capacity. You will soon be planning on the "Fall Drive" to clean up all of the odds and ends of contracts on hand or new orders in prospect, so as to enter upon December with a good year's work done.

¶ Soon, very soon, you will be going after those little leaks that you have been letting run all summer, because you did not have the time to give in correcting them. Right now, you are thinking about certain changes that you are going to make in the grinding department, the power house or in your method of burning.

¶ Anticipating your thoughts along these lines, we have prepared a line-up for our SEPTEMBER 5 ISSUE that we believe will interest you.

¶ There will be an article on THE APPLICATION OF SCIENTIFIC MANAGEMENT TO BURNING CLAY, written by an engineer with a reputation in the ceramic industry. This is a new writer in "Brick and Clay Record." You will be glad to make his acquaintance.

¶ "THE SELECTION OF MEN," is the title of another article that will appear in that issue. It is written by an executive of considerable prominence in the paving-brick branch of the industry. In this article he tells how HE does it. You will not want to miss reading it.

¶ We hope to publish a COMPLETE REPORT of the EIGHTEENTH ANNUAL SUMMER MEETING OF THE AMERICAN CERAMIC SOCIETY in the next issue. Reference to the program on another page of this issue will be enough to convince any stay-at-home that an account of this meeting will be worth reading.

¶ "WINNING THE FIGHT AGAINST FAILURE," also to appear in the September 5 issue, is a human interest story, written around the actual experience of a drain-tile manufacturer who was determined to come out on top in spite of tremendous obstacles.

¶ In addition to these, there will be other articles of interest and value and, as usual, all of our departments, including an extra good "MARKETING THE PRODUCT."

You have a three weeks' wait, but don't forget to watch the mail for the September 5 issue of "Brick and Clay Record." IT'S CONTENTS WILL BE WORTH DOLLARS TO YOU

The EDITOR'S CORNER

Comment, Criticism and Advice on
Live Issues Affecting the Manufacture, Marketing and Manifold
Uses of Burned Clay Products

WITH THIS ISSUE, "Brick and Clay Record" offers to its readers what is the opening installment of a uniform cost system for plants making the rougher forms of clay products, among these being included brick, drain-tile, sewer-pipe, hollow-tile, and similar wares.

So far as we know, this is the first attempt to put into tangible form the much-discussed subject of uniform cost keeping in the clayworking industry and, like all such attempts, is hardly a perfect piece of work. However, we have reason to believe that the system, the beginning of which is published in another part of the magazine, has much of merit and, if not perfection in itself, is sufficiently accurate for the use of most clay plant owners.

We are going to depart from the path of modesty and say that this system cost us some money. Its author, who has had several years of experience in practical clayworking and cost accounting in connection therewith, has spent considerable time in getting it into clear, concise form, *and as simple as possible.* We have given the system careful consideration and have the opinion of at least one who is in a position to know, that the methods outlined should be of value to the plant manager who is always anxious to stop leaks at the source and to prevent small breaches from becoming larger.

The objections to operating a cost system are well met in this opening article and great pains have been taken to make its many advantages perfectly clear. We trust that every reader will give this article and the following installments careful study.

Help Yourself

COST KEEPING is rapidly becoming a very important subject. In fact, it has become of such weight as to engage a large part of the time and energy of the Federal Trade Commission, which has just issued two booklets, one on "A System of Accounts for Retail Merchants," and the other "Fundamentals of a Cost System for Manufacturers."

In the first paragraph of an open letter to American manufacturers appearing in the last mentioned publication, Edward N. Hurley, chairman of the Commission, says:

"The Federal Trade Commission has found an amazing number of manufacturers, particularly the smaller ones, who have no adequate system for determining their costs and price their goods arbitrarily. It is evident that there must be improvement in this direction before competition can be placed upon a sound economic basis."

It is superfluous for us to "re-hash" what has already been said in the past, supporting Mr. Hurley's statement. His attitude toward cost keeping and its importance to manufacturers, generally, is too well known to call for repetition at this time. Our readers are also thoroly familiar with the declarations of those among their own number who have voiced views similar to Mr. Hurley's.

But we do want to say that, when the cost system—a description of which begins in this issue—is completed, it will be hard for any manufacturer of the wares which this system is intended to cover, to adequately defend his lack of a system of keeping his costs.

Some of our readers already have excellent cost systems. The writer knows of at least two associations in the clayworking industry that have given attention to this subject. One of these organizations has purchased a complete system for its members, while the other is just entering into negotiations looking toward this same end.

However, there is a vast number of manufacturers outside of these associations, and who do not have their own system, that need one. Many of these have hesitated installing one because of what they thought was an excessive cost, or purely thru ignorance, they have neglected the matter. For such, and all others who can make use of it, "Brick and Clay Record" offers the uniform cost system which it has purchased. It can be had for the taking. Help yourself.

Stop the Noise

A NOISY FACTORY is an inefficient factory. Did you ever think of that?

We have gone into clay plants where the sound of the machinery was like the purring of a six-cylinder touring car. True, it made some noise. The day has yet to dawn upon noiseless clayworking equipment, but it was a pleasant sound. Everything seemed to be running along smoothly and without a hitch. The workmen were proceeding quietly and quickly about their tasks. There was no hoarse shouting of orders. Everyone seemed busily intent upon his task, *and pleased with it.*

And then again, as we have stepped across the threshold of another plant, possibly not far distant from the one above described, we have been greeted by the clatter of worn and poorly adjusted gearings as they engaged and disengaged, and by bumping, squeaking and grinding from other parts of the machinery. The whole atmosphere was filled with disorder and neglect.

Noise annoys and distracts. It breeds mental confusion. That is why the workmen in this plant were nervously jumping about in the performance of their duty. The mysterious "oil" that seemed to keep everything working smoothly in the first plant was entirely lacking in the second.

Decidedly noisy gearing and machinery is unnecessary in nine cases out of ten. It indicates misdirected and often wasted energy. It points to false economy on the part of the superintendent or plant owner who allows parts to become so worn that they cry out with a loud voice. It means that power is being wasted at the expense of a new repair part.

Noise prevention is generally waste prevention. This is short enough and sufficiently to the point to merit a permanent berth under your hat. Eliminate the unnecessary noise and save money, is another way of putting it.

Industrial Tyrants

THE CZAR of Russia has long had a reputation thruout the civilized world of keeping his subjects in ignorance. Realizing that knowledge is power, this monarch prefers to withhold much of the light of intelligence from the multitudes for fear that they might be less desirable as subjects, if their mental development were more advanced.

The war, no doubt, has wrought many changes in the Russian Empire which have had somewhat the effect of putting the Czar more in the light of a leader of his people than a despot, but the Slav is still far from being comparable with the inhabitants of other European countries in learning, freedom and capability, much less with the average citizen of the United States.

But notwithstanding the fact that we are a free people, we have our petty czars. There are a few of them in the clayworking industry. One of these said the other day that he did not want the men on his plant to read ceramic literature because he was afraid they would learn something—get "wise" and perhaps seek better positions. Evidently this plant manager has no use for intelligent workmen, otherwise he would encourage their efforts to reach a higher plane of knowledge concerning the practical and technical end of the business.

You say: "Can it be true that we have such a man among us?" Yes, it is a fact, and you not only have one but many of this type.

When everyone else is striving with might and main to get good workmen and train them so that they may become more efficient, we have those who are employing methods of superintendence that hark back to feudalism. It may be that some whose manner of management fits the above description will read this editorial and be smitten with the conviction that their attitude is absolutely wrong. At least, we hope so.

Upholding the right of the workman to a chance for advancement in both knowledge and experience is not socialism; it is good business. Inexperienced, ignorant, and bungling workmen are positively an expense to any plant and no manager or superintendent can afford to keep them.

Co-operative Advertising

"PRINTERS' INK" in a recent issue published an article under the heading: "Dairy Interests Open $750,000 Education Campaign."

"But what has milking cows got to do with making brick?" you ask.

Simply this. The National Dairy Council, which is composed of 280,000 members interested in advancing the cause of dairying, have decided that some powerful force is necessary to change the condition of overproduction and underconsumption that obtains in that industry, into the direct reverse. Furthermore, it believes that advertising and publicity are the powers that can accomplish this end and is willing to back up its belief with $750,000 of good money.

But why have the dairymen come to the conclusion that to advertise is the right thing? Because other industries have increased the per capita consumption of their products thru advertising and have brought about better trade conditions.

"Attention was called to the fact," the above-mentioned article goes on to say, "that the ready-made clothing industry had been able to drive the price-cutters from the field by teaching the public that at least $25 should be paid for a suit of clothes.

"The California Fruit Growers' Exchange had been able to increase the the per capita consumption of oranges seventy-one per cent. within ten years, with only a twenty-one per cent. increase in population. The Electric Vehicle Association's campaign was also referred to and notice made of the fact that as a result of it, many of the members had been pulled from the doors of failure and the market for this type of vehicle greatly increased. Further evidence of the value of advertising to solve their problems was found in the $1,000,000 campaign of the Lumbermen's Association, the $160,000 campaign of the California Associated Raisin Company, the $300,000 campaign of the Southern Pine Association, and other co-operative campaigns, most of which are familiar to our readers."

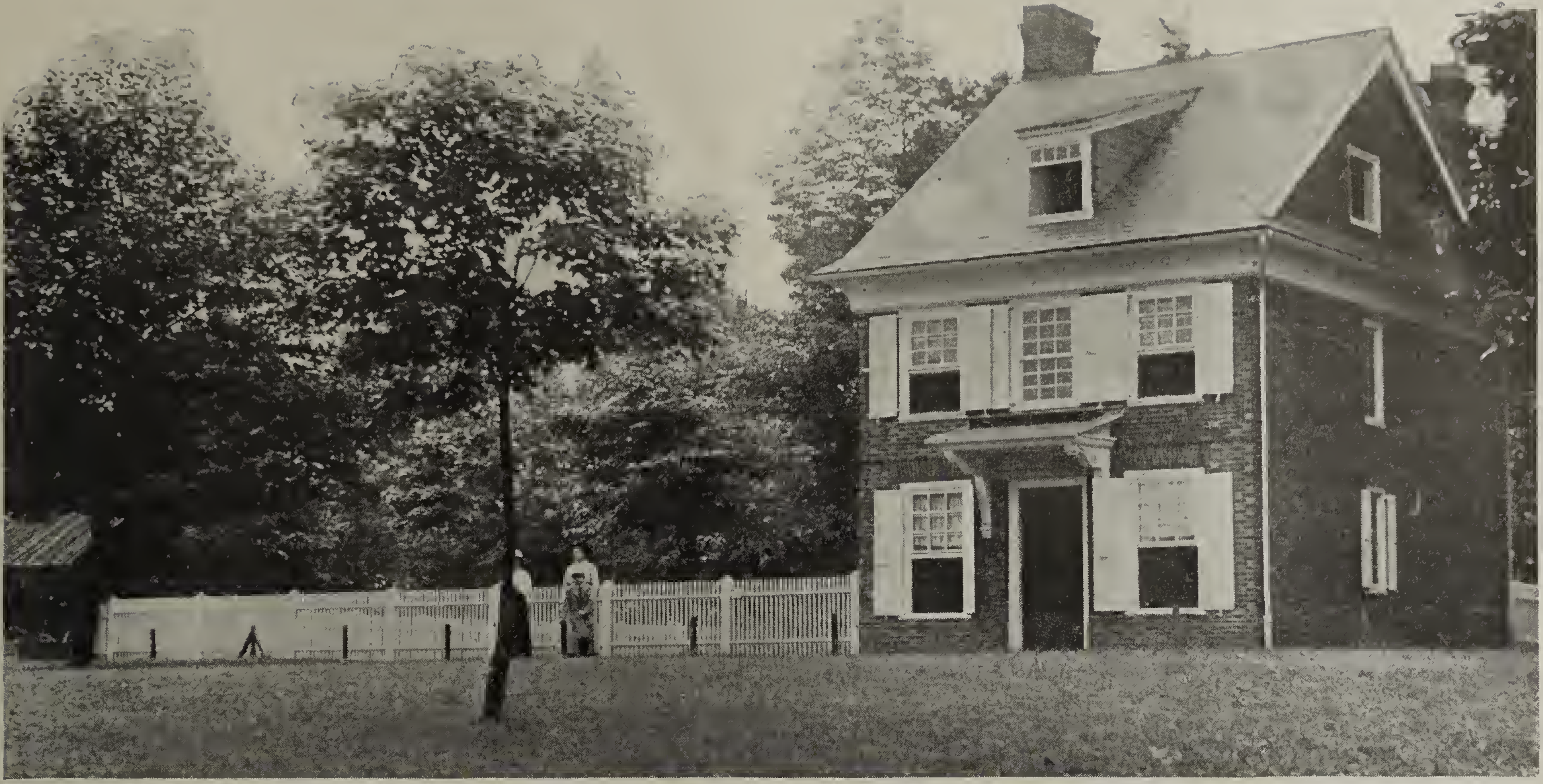
What It Means to You

WITHOUT going further into a discussion of the marketing methods employed by industries, concerning which the average clay products manufacturer knows little and cares less, let it be sufficient to say that if others have pulled their business out of a rut by advertising, *why can't you?*

We believe that there is little doubt in the minds of the majority of our readers but that advertising would be a great boon to the industry. Some would go further than that. They would say that judicious, well-handled advertising is the one thing needed to put the business of turning clay into superior building materials, on a decidedly profitable basis.

The one big obstacle in the past has been: We cannot get together. Difference in opinion regarding details, and above all, the lack of back-bone and conviction in providing financial support has doomed every national attempt at brick advertising a failure.

When the milkman, cheesemaker, buttermaker and ice cream manufacturer can get together and be of one accord in the matter of improving market conditions and providing the necessary funds with which to do it, it is high time the brick, tile and other clay products manufacturer began to do some thinking along this line.



The First Brick House Built in the "City of Brotherly Love." It Was Erected in 1682 by the Founder of the City—William Penn. The Building Has Been Removed from Its Original Location in What is Now the Congested Section of Philadelphia, to Fairmount Park

PHILADELPHIA—the CITY of BRICK HOMES

After More Than Two Centuries of Building With Brick, the "Quaker City" Offers Some Conclusive Evidence Regarding the Economy of This Type of Home

By Robert F. Salade

WHEN WILLIAM PENN had the first brick house built in Philadelphia, he knew, of course, that other homes of like character would soon be erected in the neighborhood, for Penn had many good reasons to believe that "The City of Brotherly Love" would grow and develop rapidly. Little did he think, however, that eventually the time would come when Philadelphia could boast of *several hundred thousand brick homes.*

PENN'S HOME FIRST STATE HOUSE OF PENNSYLVANIA

Penn's house, a picture of which is shown in an accompanying illustration, was the first State House of the Province of Pennsylvania and was built in 1682—two hundred and thirty-four years ago. It was made almost entirely of red brick, and to give an idea as to how well brick can withstand the storms and weather-changes of centuries, the William Penn "Mansion" is still in existence after more than two hundred years. It has been moved from its original location to beautiful Fairmount Park, where its doors are open for the public. Altho Father Time has engraved his marks upon this historic old structure, it is hale and hearty, and is, no doubt, in condition to enjoy several additional centuries of life.

Profiting by Penn's good example, the early inhabitants of the "Quaker City" began to have brick residences erected in considerable numbers. Thus, when Gabriel Thomas in 1697 wrote a historical description of the Province of Pennsylvania, including an account of the City of Philadelphia, he calls particular attention to the number of houses, "most of them stately, *and of brick,* three stories high, after the mode in London." That many brick buildings were being put up at that period is also indicated by another statement of Mr. Thomas, namely: "Brick-layers and masons will get between five and six shillings per day constantly." He also wrote: "Brickmakers have twenty shillings per thousand for their brick at the kiln," which points out the fact that brickmaking was quite an industry around 1697 in the City of Penn.

EARLY RESIDENCES BUILT IN COLONIAL STYLE

The notes of Gabriel Thomas prove at this time the homes of better quality with few exceptions were located on Walnut street, Chestnut street, High (now Market) street, Vine street, Front street, Second street, etc. The majority of these houses were in the section which is now bounded on the west by Independence Hall; Delaware river on the east; Pine street on the south, and Spring Garden street on the north. Many of these residences were built in the simple but beautiful Colonial style of architecture, and a few of the houses are still standing. But office buildings, banks, factories and other business ventures have squeezed the other original structures out of existence long ago.

A Row of Three-story Red Brick Houses on Susquehanna Avenue, West of Thirtieth Street, Philadelphia.

North, west and south the City of Penn developed rapidly. Row after row of both large and small residences sprang up as multitudes of strangers crossed the Atlantic to seek their fortunes in the New World. Many foreigners settled in Philadelphia because of the natural attractions of the town. William Penn wrote in 1683:

> But this I will say, for the good providence of God, that of all the many places I have seen in the world, I remember not one better seated; so that it seems to me to have been appointed for a town, whether we regard the rivers, or the conveniency of the coves, docks, and springs, the loftiness and soundness of the land, and the air, held by the people of those parts to be very good. It (Philadelphia) is advanced within less than a year, to about fourscore houses and cottages, such as they are, where merchants and handicrafts are following their vocations as fast as they can.

Gabriel Thomas, in his historical description of Pennsylvania (1697) wrote, after having lived in the Province for about fifteen years:

> The city of Brotherly Love far exceeds her name-sake of Lydia, and will, in all probability, make a fine figure in the world, and be a most celebrated emporeum. Here is lately built a noble town-house or guild-hall, also a handsome market-house and a convenient prison.

At the time of this writing the city was situated between the Schuylkill and Delaware rivers, and had some prophet told Thomas that in the year 1916 the city would have extended over and beyond the Schuylkill river, forming a very great area known as West Philadelphia, embracing a population of 150,000 souls or more, it seems likely that even the optimistic Thomas would have doubted the prophesy.

FOUR HUNDRED THOUSAND HOMES IN "QUAKER CITY"

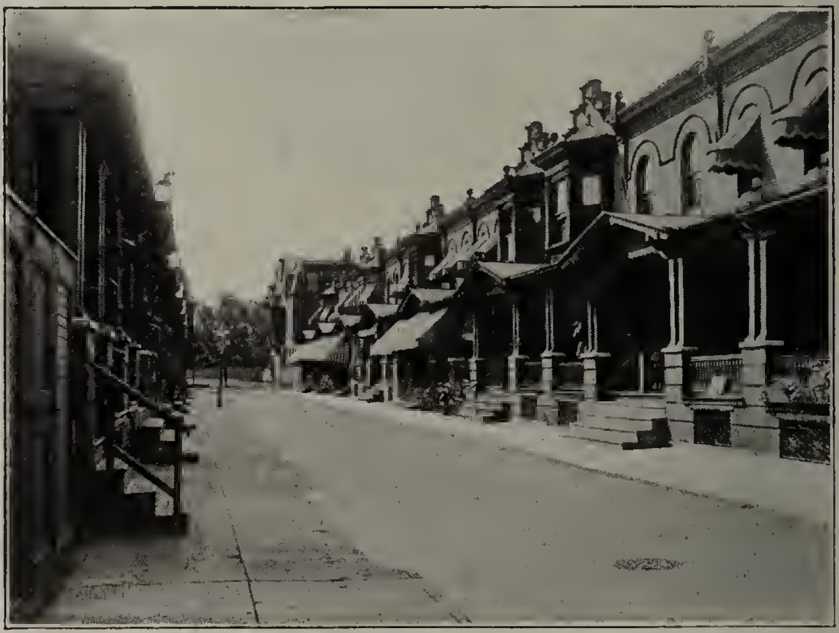
Today, the population of "The World's Greatest Workshop" (as Philadelphia is now often termed by reason of its remarkable variety of industries) numbers not far from 2,000,000. There are nearly 400,000 homes, the great majority of which are of brick, and hundreds of additional houses are in course of construction in the several suburban sections of the town.

No wonder that Philadelphia has won among its various other sub-names the title of "The City of Homes," for here every family, no matter how humble it may be, can have its own home at a monthly rental which is by no means expensive. For example, it is possible for a family to rent a four-room brick house in the older sections of the town for as little as ten dollars monthly. In some undesirable districts three-room houses can be rented for even less than the figure just quoted. This fact is mentioned to prove that in this city even a very poor family is not forced to live in a tenement, or flat house. These mean little houses may be located in streets no wider than alleys; they may be in small courts, but still they can be truthfully classed as homes, and "Be it ever so humble, there is no place like home."

The great mass of the people, however, reside in houses of six, seven or eight rooms, renting at prices ranging from $15 to $20 monthly. Practically all of these houses are located in advantageous sections of the city, and while a large number are located on smaller streets and avenues, many neat but low-priced residences can be found along practically all of the main thorofares. In fact, there is such an abundance of "mansions" of almost every size and price that one can find a suitable place with no difficulty whatever. With so many houses on every side, there are always considerable removals, and this gives "house-hunters" plenty of opportunities.

PHILADELPHIANS FREE FROM "GIPSY CURSE"

From the foregoing the reader should not believe that Philadelphians, as a class, are in the habit of changing homes frequently, for such is not the case. As a matter of fact, the average family selects a desirable home and holds it for a very long period. The Philadelphian is noted as a home-lover, and when he finds a house well suited to his ideas of comfort, environment and economy, it is his custom to adopt that house as his permanent residence, and to make it his home for many years. Of course, with so many houses to chose from, some families become afflicted with the "Gipsy curse," and they keep moving from house to house merely to keep the moving-men busy, but happy to state such people do not form a large part of the "Quaker City's" population.



Many of Philadelphia's Homes Have No Front Porches or Verandas. These, However, Have. They Are What Is Known as Two-story Porch Houses, Built with Pompeii Brick

Small brick houses have been the means of many a man building up a small fortune from practically nothing. It comes about in this way: Philadelphia, as almost everybody knows, is very rich in building and loan associations. In fact, it is said that the first society of this kind had its origin in the City of Penn. A man or woman will take out a number of shares with one of these associations, and within a few years will have several hundred dollars saved in this way. Then, the man or woman will want to buy a certain home. The building and loan society puts up the necessary amount, and for a period of about twelve years the member pays back to the association, in monthly installments, the sum borrowed. The monthly payments do not amount to more than ordinary monthly rental payments, and thru this system a thrifty man or woman becomes clear owner of a home within a comparatively short time.

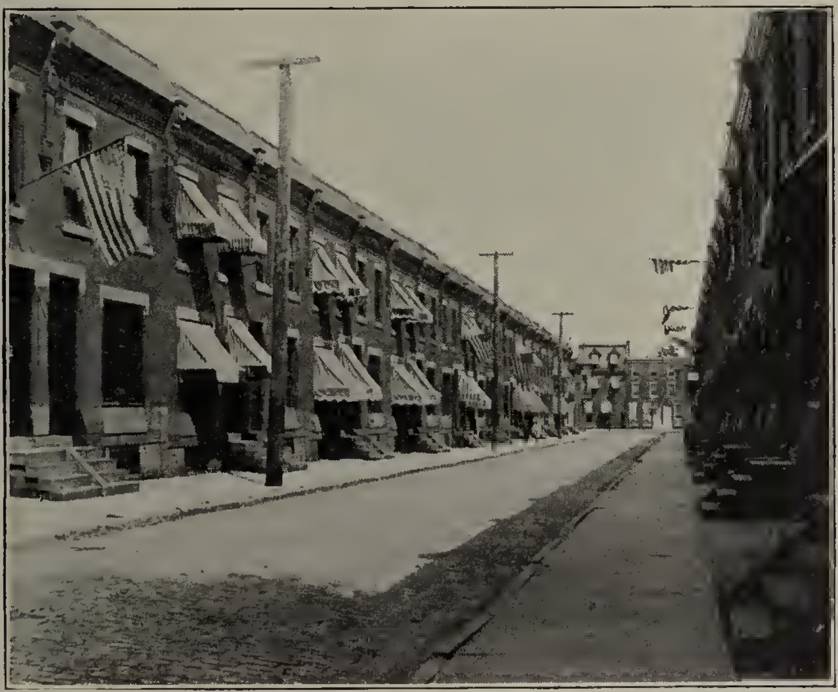
BUILDING ASSOCIATIONS DO THRIVING BUSINESS

The writer is personally acquainted with a number of men and women who have bought as many as a dozen houses thru the aid of building and loan associations. A few hundred dollars were put down upon each house. The houses were rented, and the tenants, thru their payments of rent, soon "purchased" the houses clear for the *owners*. This fact is mentioned to illustrate how easy an enterprising person can become owner of a number of houses in Philadelphia with very little capital.

Now, thru the assistance of building and loan associations, thousands of working people have bought their own homes in the "Quaker City" with no great difficulty, and it is safe to say that in this town more people of the so-called "middle class" own their own homes than in any other large city of the world. This has contributed much to the happiness and prosperity of the Philadelphians, for when the head of a family is owner of his abode, he is in a more advantageous position to save money in a general way. When such a man departs this life, his family is left in fairly comfortable circumstances. Thus, it can be readily understood how a plain, little brick house has been the nucleus around which many a poor man has built up a fair-size fortune.

BRICK HOMES LOW IN COST

In Philadelphia it is possible to buy a first-class eight-room brick house at from $3,500 to $4,000. Such a home has all of the modern improvements, hot water heating system, both gas and electric lighting; bath-room fitted up completely with porcelain lined fixtures; porch; good-size yard, etc. There are hundreds of six-room brick houses at about $1,500 each. Large numbers of seven-room dwellings at from $1,700 to $2,500, and so on.

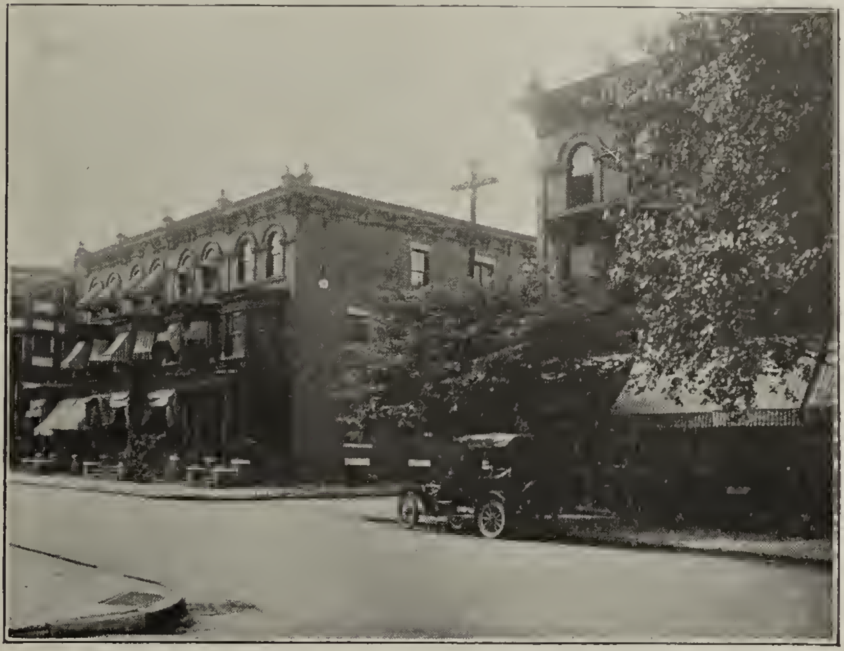


A Row of Two-story Red Brick Houses. These Are Typical Philadelphia Homes. It Will Be Noted That There Are No Porches in Connection with These Dwellings

It will, no doubt, be interesting for some readers to know how it is possible to build such excellent houses to sell at the low prices quoted. To those not familiar with the business methods followed in Philadelphia in this connection, a brief explanation is offered.

HOW MOST OF THESE HOUSES ARE BUILT

In not a few instances the builder selects a site spacious enough to hold perhaps several hundred new houses. Plans are drawn for a house best suited to the neighborhood, and the same plans are followed for the erection of all the houses, which are built in rows. That is, they are usually built close together—not detached, or semi-detached—and this plan embodies special advantages. For example, a row-house is warmer during cold weather than a detached or semi-detached house by reason of it being "hugged" on each side by other houses; it can be built for less money, as there is not only a saving in the cost of ground, but there is also a saving in material for the side walls.



A Row of Three-story Porch Houses, Also Built of Pompeii Brick, on Susquehanna Avenue, East of Thirty-Third Street, Philadelphia

The builder is financed by one of the big trust companies in many cases, and if he is an expert business man, he gains a handsome profit when the building operation is completed and disposed of. Some builders have failed sadly in these ventures mainly because they did not possess a keen eye for business. When handling an operation of several hundred houses a contractor must understand how to buy judiciously as well as know how to sell. Buying the right kind of labor and materials is not an easy matter.

Not a few contractors have been very successful, financially, in home building operations. Their success may be attributed to several causes. First, the choice of a model of a home beautiful and useful for people of the "middle class"; second, selection of a site in some growing section of the city from whence the business district can easily be reached by a number of good street car lines; the purchase of labor and materials to the best advantage; prices of the houses within easy reach of the people. So wisely have all these details been considered by certain builders that the entire operations were "sold out" before the homes were ready for occupancy.

For the information of those who may not as yet have visited "The City of Homes," perhaps it would be well to write a rough pen picture giving an idea of the "style" and appearance of a few of the most popular Philadelphia houses. There is a great number of two and three-story residences built in solid rows. The fronts are of smooth red brick with brownstone or white marble trimmings. With this style house there is no porch in front, and no basement kitchen such as so many houses in Brooklyn, N. Y., possess. The "stoop," as they term it in New York, is of brown-stone, or white marble, and usually is low, consisting of about four or five steps with no side railing. The cellar runs the full length of the building, and is used only for the storage of coal, the hot air furnace, or the hot water heating apparatus. On the first floor are the parlor, dining-room, kitchen and outer kitchen. On the second floor are bed-rooms, sitting room and bathroom. In the three-story house the additional floor contains bed-chambers. This is the typical Philadelphia home.

Three-story Twin Houses on Thirty-third Street, North of Columbia Avenue, Philadelphia. These Are Built of Pompeii Brick

NOT ALL HOMES ARE CONSTRUCTED IN ROWS

Then there are also thousands of two and three-story porch houses, practically all of them built of brick, and laid out about the same as the houses without porches. Altho the majority of "Quaker City" homes are built in rows, there are in the newer sections many "twin," or side-yard residences, and also quite a number of detached, and semi-detached houses in the Germantown, Mount Airy and Chestnut Hill suburbs of the city.

Pompeii face-brick is used in the construction of the two and three-story houses to a great extent. And, of course, brick of various other colors and compositions are used occasionally, but the smooth red brick, and the Pompeii are the leaders. The latter is used in the short Roman, standard, Flemish, full Roman, and Norman sizes, while red brick is most popular in the standard size.

There is a surprising number of smaller streets and avenues, and along these are strung brick houses of various designs to be rented at prices ranging from $15 to $18 monthly. These

(*Continued on Page* 346.)

* * *

Pleasure and Profit Combined in Program of Unusual Merit for Ceramists' Nineteen-Sixteen Summer Meeting at the "Mound City"

A gathering that very few interested in the business of manufacturing clay products will want to miss, is scheduled for the 23rd, 24th and 25th of this month. It will be held at St. Louis, Mo., which is on the banks of the "Father of Waters" and the center of large and varied branches of the clayworking industry, the raw materials for which are produced in the adjacent country. The gathering will take the form of the eighteenth summer meeting of the American Ceramic Society.

Without a doubt, the committee appointed to arrange for this meeting did their work well, for they could hardly have chosen a more interesting place. In addition to its numerous clay plants, which manufacture common-brick, paving-brick, face-brick, enamel-brick, terra cotta, fire-brick, sewer-pipe and a host of other products, the city and river are of great historic and literary interest, and the exceptionally fine parks, gardens and museums make the location selected for the summer meeting one which should appeal to every member of the society as a desirable part of his vacation itinerary.

As in the past, plant inspection will be the feature of the meeting, with informal gatherings in the evening. The official program, issued from the secretary's office, follows:

WEDNESDAY, AUGUST 23

The members are expected to meet in the lobby of the New Washington Hotel at Delmar and Kingshighway at 9 a. m. At promptly 9:30 they will leave for the works of the Mississippi Glass Company. This is a plant of particular interest to ceramists, being one of the very few factories that manufacture cathedral glass.

In the afternoon the three plants of the Hydraulic-Press Brick Company at Manchester avenue and Kingshighway will be visited. At these plants, common-brick, face-brick, paving-brick and enamel-brick are manufactured by the dry-press and stiff-mud processes.

The evening will be spent in an informal gathering at one of the open air summer gardens located near the hotel.

THURSDAY, AUGUST 24

The party will leave the hotel at 9 a. m. for the Highland Fire Clay Company—a plant devoted to the washing and preparation of glass-pot and other high-grade fireclays.

From there the members will proceed to the sewer-pipe factories of the Evans and Howard Company, which are especially interesting on account of a recent installation of the widely discussed system of scientific management.

At 12:30 the party will leave for the Laclede-Christy Company's Manchester avenue plant, and, after a lunch served at the company dining room, will go thru its exceedingly interesting factories. Members are also especially invited to visit the well-equipped laboratories at the Christy plant.

The next stop will be at the plants of the Saint Louis Terra Cotta Company and the Winkle Terra Cotta Company—factories so well known by reputation to all members of the society as to require no description.

At 6:30 p. m. dinner will be served at "The Highlands" —the only amusement park in the country operated in connection with a clay plant.

FRIDAY, AUGUST 25

The party will leave the hotel at 8:30 a. m. to take the 9:30 boat of the Eagle Packet Company (foot of Locust street) for Alton. This Mississippi steamboat is known thruout the world, and a trip up the historic river to the Alton Paving Brick plant should furnish a happy combination of information and pleasure.

Luncheon will be served on the boat, which stops four hours at Alton, allowing ample time for the inspection of the Alton Brick Company's gas-fired producer kilns and the bottle factory of the Illinois Glass Company, the largest in this country, where blowing machines are replacing hand blowing. The boat leaves Alton for Saint Louis at 5 p. m., where party will disband.

COST ACCOUNTING *for the* CLAY PLANT

The Opening Installment of a Series of Articles Which Will Include Forms and Tables, and Which, When Completed, Will Make a Complete Cost Accounting System

By A. J. Huac

IT IS RECOGNIZED that a uniform cost system for brick, drain-tile, sewer-pipe, hollow-tile and other clayworking plants has been needed for a long time and, in fact, has been attempted on different occasions. Owing to varying opinions, however, it has never been carried to a conclusion, as far as known.

This series of articles, which begins with this issue of "Brick and Clay Record" and which will include forms and tables, can hardly be perfect. The first attempt at a system of this kind is very seldom without fault. It is intended to cover practically every item that enters into the cost of manufacturing any of the rougher clay products. The writer feels certain that no factory can be found to which every item on every table will apply. In some cases the omission of an item here and another there will produce a system that is especially adaptable to the factory in question. In other cases, the omission of an entire table or the use of two tables where one has been provided will accomplish the desired results.

SYSTEM IS COMPREHENSIVE

One of the main claims for the system is that it is comprehensive—very much like the forms used in calling for periodic statements from national banks. Similar to the use of those forms, any item or table that is not needed in any particular instance can easily be omitted without in any way effecting the success of the system.

To this end, these tables have been devised, independent of any bookkeeping system. There are various reasons for this, but the principal one is that the suggestions given herein will prove of benefit to more manufacturers in this form. These tables can easily be merged into a bookkeeping system if desired.

From time to time the benefits in a cost system, and especially in one of this nature, will be more fully pointed out.

CABINET COMPARISONS

It might be added at this point that bookkeeping alone is like the foreign relations department of a government, inasmuch as it deals almost entirely with the external relations of a business. Cost accounting on the other hand is similar to the interior department, since it deals entirely with affairs within the business. No account is taken of the firms from whom purchases are made or of the customers to whom material is sold. A bookkeeper, therefore, is like the Secretary of State; a cost accountant, the Secretary of the Interior, and a combination of the two, the whole Cabinet in a nutshell.

It has been said that this series is not perfect, but that it is meant to be comprehensive. If any of our readers desire to ask any questions, make any suggestions or offer any criticisms, good or bad, we will be very glad to hear from them.

We claim that this series of tables will be equally serviceable to the smallest plant and to the largest factory, by the proper selection of the items in which each is interested, and which apply in each case.

One of the most serviceable advantages that we claim for these tables is the system of cross-posting. There are a few tables which contain all of the original information, like the distribution of labor, the cost of repairs, the value of the plant, etc. We have shown in each case *to* which point to post or transfer the figures. We have also shown as far as possible the place *from* which to post these figures.

This simplifies the operation of the system a great deal. We recognize that cost keeping to be practical for a clayworking plant must be economical in operation. We believe that has been one of the great obstacles in the way of the use of a cost system for most plants. With our system of cross-posting, almost anyone, even tho only remotely familiar with the details of the business, can work out the final results when given the proper original information. The manager will not be required to obtain the expensive services of an experienced cost accounting clerk.

A FEW SIGNS EXPLAINED IN ADVANCE

To make the system of cross-posting more easily understood, we will explain the meaning of the figures which are to follow: (14) refers to line No. 14 of the same table; T2-12 refers to Table No. 2, Line No. 12; T19-I refers to Table No. 19, Column No. 1; T21-106-XXV refers to Table No. 21, Line No. 106, Column XXV; (8÷9) refers to a division of the figures on Line No. 8 by the figures on Line No. 9 to get the proper result. This refers also to the lines of the same table; (16+17+18) refers to an addition of the totals on Line Nos. 16, 17 and 18 of the same table; (1 to 7) refers to an addition of the totals on all lines from No. 1 to No. 7, on the same table; (19-20) refers to the results of subtracting Line No. 20 from Line No. 19.

PLANT DIVIDED INTO FIFTEEN DEPARTMENTS

We have divided the work of a clayworking factory into fifteen departments, from the start in the pit to the finish in collecting the account, as follows:

1. Digging Clay
2. Power
3. Preparing Clay
4. Making
5. Drying
6. Setting
7. Burning
8. Emptying
9. Loading From Yard
10. General
11. Stripping
12. Stable and Teams
13. Superintendence
14. Selling
15. Administration

The first fifteen tables will consist of cost tables for these departments. The other tables will consist of the following:

16. Final Cost
17. Monthly Balance Sheet
18. Daily Time Sheet

19. Labor and Team Distribution
20. Distribution of Expenses
21. Division of Fuel, Water and Electricity
22. Value of Plant
23. Production—Digging Clay—Department 1
24. Production—Power—Department 2
25. Production—Preparing and Making—Departments 3 and 4
26. Production—Drying—Department 5
27. Production—Setting—Department 6
28. Production—Burning—Department 7
29. Production—Emptying—Department 8
30. Production—Loading From Yard—Department 9
31. Production—Stripping—Department 11
32. Production—Selling—Department 14

Two items are common to the cost sheets of all departments. They are: Labor or Equivalent, and Repairs, Tools and Supplies. Therefore, an explanation of them at this point will suffice for all.

LABOR OR EQUIVALENT

This item includes everything that equals labor. All hauling, teaming and contract work is to be included. In some plants it might be of advantage to separate teaming or hauling from labor, and make two items of this combined item.

There is one exception to this rule. Any labor for repairs or for betterment is to be charged as repairs for that department or as betterments, as the case may be. This item is intended to include only operation labor.

REPAIRS, TOOLS AND SUPPLIES

Some large plants may desire to separate these three items.

Repairs cover pieces of a machine or of equipment which are put in place of another part after it has been worn out or broken. Repairs are always a credit account of inventory until put into use. Then the worn or broken part is put into junk or scrap inventory. A new gear, babbitt metal, bolts, wagon wheels, etc., are included here.

Tools cover shovels, picks, wheelbarrows, wrenches and other implements which are in constant use, and always have an inventory value of their original cost minus depreciation.

Supplies cover items like oils, greases, straw, salt, hay and feed. Anything that is consumed in the operation of the plant comes under this heading. Coal and water really should be added here, but on account of their importance, we will put them under separate items.

ADVANTAGES OF A COST SYSTEM

Any good method of cost keeping, and especially a uniform system, has many advantages. Our system is designed to show the operating and overhead expenses of each department separately. It is also designed to afford ample comparisons between periods. We, therefore, claim the following advantages for this series of cost keeping tables. Of course, some of these advantages are possessed by any good system and more by a good uniform system.

CROSS-POSTING FACTOR OF SIMPLICITY

(1) Our system of cross-posting simplifies the working of the system. This enables a manager to have the work done by one not entirely familiar with the details of the business. Naturally, therefore, the cost of operating this system will be materially reduced. A bright office girl can get as good results as an expensive cost clerk. Moreover, suppose John Jones, who has been attending to the cost system catches typhoid fever, or demands more pay when the manager thinks he is not worth it, or gets an offer for a better position, or is asked for his resignation at once. Someone else can take up the work where John Jones left off. Of course, the new man would be slower at first, but in a short time practically no one would know that there had ever been a change in the personnel of this part of the office. This system of cross-posting will enable the manager to fill in the breach far easier than if we did not have this feature.

(2) Of course, the proportion of the expense of keeping these records will vary with the size of the plant. The percentage of expense will be larger for a small plant than for a large one. We estimate, however, that the cost will always be between one and two per cent. of the sales. Many places can be found about the plant thru the aid of the cost system where economies will save two or three times this amount every month. The installation of a system of this kind, therefore, will show good business judgment and increase the profit side of the ledger.

(3) As previously explained, any item that is superfluous can be omitted without injuring the efficacy of the result in the least.

COMPARISON WITH CORRESPONDING PERIODS POSSIBLE

(4) All of the cost tables, that is, the first fifteen, are arranged so that the cost during the current month can be compared with the cost of the corresponding month of last year; also the cost for the past twelve months can be compared with the twelve months previous. In this way, if costs start to rise, the cause and a remedy can be found before the loss extends very far. This feature alone will save the expense of operating this system many times. Again, if costs in one department start to diminish, it can be the cause for congratulation to the head of that department. The manager will do well then to turn his time and attention to some other features that need to be corrected.

OPERATING AND OVERHEAD COSTS SEPARATED

(5) Our first fifteen cost tables are figured out to show the operating and overhead costs separately. The operating costs can all be collected and shown to the superintendent's department, irrespective of any other costs. These costs will not vary as much in proportion to the production as the overhead costs. The superintendent is responsible for all operating costs, and this system will show when they rise or fall. Of course, no one objects if they diminish, but if they rise, the superintendent's department will know that it is its duty to remedy the trouble, if possible. If all the costs, including operating and overhead, were figured together, the cause of any rise could not be detected as easily, with the possibility that the responsibility therefor might be shifted from one pair of shoulders to another, where it did not belong.

HAVE STRIVEN AFTER SIMPLICITY IN SYSTEM

(6) *Our aim has been to make this system as simple in operation as possible.* The manager of a small plant may think there is too much detail work connected with it, but if he omits and combines at the proper points he will find that this is not true.

In operating this system we would advise the operator to post and total as many figures as possible within the few days just prior to the end of the month. In this way the final figures as shown on table No. 16, can be arrived at within the shortest possible time after the first of the month. The quicker the full results are obtained the sooner any trouble will be found, and the quicker remedies can be instituted. Of course, the time necessary to arrive at the final results will vary. If, however, the operator has nothing whatever to do in the meantime (which is the best method to pursue, if at all possible) he ought to finish the entire system in less than five days after the first of the month, provided he has done as much as possible before the end of the month.

COST SYSTEM LIKE AN X-RAY

(7) The time and attention of a manager should be given to bettering the weakest points in his organization. This system will point these out to him. A good cost system is like

the X-ray of a physician or surgeon. Many times a patient is sick, but the doctor or surgeon does not know what his ailment is. He goes from one to another, using one remedy and treatment after another, with poor results. Finally, a physician, experienced in the use of an X-ray, is consulted. He finds out quickly where the trouble is, and everyone thinks of the time and energy wasted by the other doctors in trying to remedy an evil when they did not know what it really was.

A good cost system is an apparatus for the manager. He can direct his time and energy in correcting the weakest parts of his organization as shown by the diagnosis. No one has such good judgment that he can decide entirely thru outward observation where the organization needs correction. The X-ray cost system will show where the inward trouble lies, and the manager can receive far greater benefits from his time and energy by application at the proper point. Moreover, a manager can absent himself from the office for greater intervals with the assurance that if any operation increases in cost he will know it at the end of the month. The time a manager saves by knowing where to direct his energies, if applied toward increasing the volume of business, will bring in several thousand per cent. interest on the investment necessary to operate this cost system.

HELPS "BUYING WELL"

(8) In buying any good equipment, a manager can say to the salesman: "The operation of this department costs so much per thousand or per ton. How much saving will you guarantee?" The answer of the salesman and the records afterward will show whether or not the manager lived up to the "Buying Well" slogan.

(9) In conventions and association work this system will prove extremely valuable. It will be found that everyone is talking in the same language, so to speak.

The various plants of each branch of the clayworking industry can use this system as a uniform system, and report their costs to a central bureau. This central bureau can average these costs and send a copy to each contributor. In this way, if the costs are higher than the average, the management must use its energy toward reducing them to the average.

As the costs of making clay ware are reduced, their use will increase. This, of course, will help to enlarge the profits to be derived by the stockholders from their investment.

SYSTEM SHOULD TELL MANUFACTURER HIS COSTS

(10) What might be called the main advantage of the system is the ability to know the minimum price at which the ware can be sold to show a fair profit. Price cutting, as everyone knows, *is ruinous.* If a manager knows what his ware costs, he will not try to compete with the man who sells below cost in a certain market. If he cannot get a fair price, he will wait until the price-cutter goes to the wall, and in the meantime find business elsewhere.

Our aim at every point has been to obviate, as far as possible, any classification of labor or other expenses under "general" headings. A cost system must be specific in order to be of the utmost benefit. In the operation, therefore, particular stress must be laid on overcoming as far as possible the temptation or tendency of shifting into a general classification, any item which really belongs in one or more of the specific items. The smaller the general classifications are kept, the more beneficial will be the results.

DIFFERENCE BETWEEN "OPERATION" AND "REPAIR" LABOR

In the smaller plants it may be hard to distinguish between "operation," labor and "repair" labor. When the labor is expended for the adjustment of a machine and no new part is added, it should be charged to operation and not to repairs. This distinction really should be made very marked by each individual plant manager unless working in an association, and then the association should make the distinction very marked.

All labor for betterments should be charged to betterments, as that charge is really a part of the cost of the new equipment.

This system is worked out for a plant making five classes of ware. Any ware which averages different weights must be divided into classes, In a drain-tile or sewer-pipe plant each size should constitute a different class. In a fire-brick plant it may be of advantage to have each shape in a different class, and then again it may not. A paving-brick plant making blocks, building brick and face-brick needs different classes. Common-brick, roman-brick, etc., will also require classification.

We have also divided the results from the kilns into three grades, namely, firsts, seconds and broken.

The number of classes and grades can be increased or reduced at the option of the management.

USE OF ADDING MACHINE URGED

We cannot advocate too strongly the use of an adding or figuring machine, in connection with a cost system. There is so much detail work in operating a cost system that it is found to be very expensive to get along without a machine.

Most large plants have one, and the small plant which does not have one will find that the time which the bookkeeper will save in his ordinary work will be enough to operate a cost system.

In this way, the cost of an adding or figuring machine will be practically the only cost of installing this system.

GOVERNMENT EXPERTS COMMEND BRICK ROADS

Continuing its advice on road building, says the Washington "Times," the United States office of good roads in a bulletin issued on July 29, discussed brick as a material.

Forty-four years ago the first brick road in the United States was constructed in Charleston, W. Va.

"The experience of forty-four years," says the United States office of good roads, "has demonstrated that it is entirely practical to construct satisfactory brick roads."

"These roads," say Uncle Sam's experts, "now are giving general satisfaction, when properly constructed, and it is probable that their mileage will continue to increase rapidly."

The principal advantages of the brick road, according to the Government road service are:

1. Durability under practically all traffic conditions.
2. They afford easy traction and good foothold.
3. Easily maintained and kept clean.

The only disadvantage attributed to this type of road is the high initial cost. This is largely offset, it is figured, by the low maintenance and general stamina of the road.

The best type of brick road, in the opinion of the Government road experts, is a good brick laid on a sand cushion, with a substantial concrete foundation.

The most essential factor in the building of a good brick road is the selection of a suitable brick. The United States road men recommend brick, made from shales and fire-clays of the "lean" varieties, that are hard, rough and uniform in size. The shales are red, while the fire-clays produce a light-colored road.

Altho definite specifications as to crushing strength are not necessary, good paving-brick should withstand a pressure of from 15,000 to 20,000 pounds per square inch.

The OPEN DOOR to RESULTS in BURNING

How the Application of Pyrometry to the Most Important of All Clayworking Operations Can be Made to Yield Unlimited Opportunities for Saving Time, Fuel and Labor and the Securing of Better Ware

By C. O. Arbogust, Cr. E., and L. J. Sheridan

(Continued from August 1 Issue.)

THE ROLE that the pyrometer plays in controlling the chemical and physical changes in clays under fire is just as important (and with some clays it is even more important) as the part it plays in indicating the best methods of mechanically handling a kiln.

As in the previous section only those points will be discussed that are very important, as follows:

(1) The oxidation of carbon and sulphur.
(2) Vitrification and settle.
(3) Salt glazing.
(4) Colors.

These conditions do not apply to all clays, of course, and if a clay is free from impurities, and is not vitrified, colored or glazed, the time temperature curve may approximate a straight line, and no trouble or delay in the heat advance is necessary, but if the operations indicated above are necessary, in whole or in part, a complex temperature situation develops, during which the pyrometer is invaluable.

OXIDATION OF CARBON AND SULPHUR

This is important, particularly in a clay that is to be vitrified and must be completely accomplished before that temperature is reached at which incipient vitrification starts.

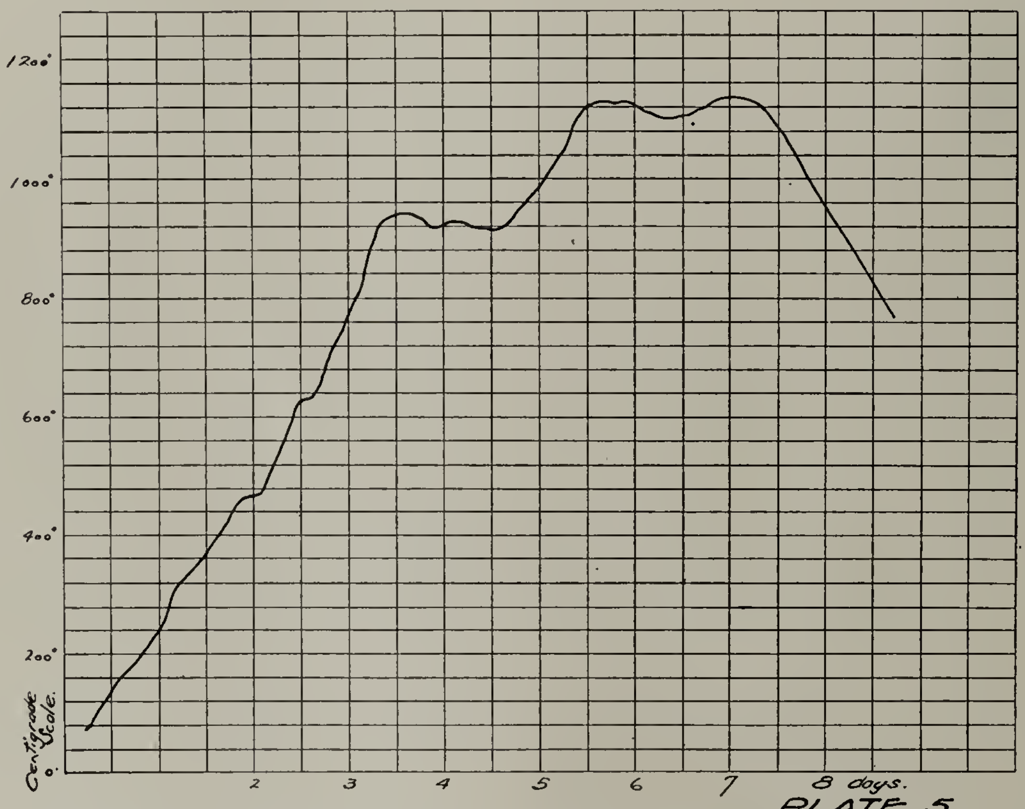


PLATE 5.

The First Burn Recorded By a New Pyrometer Installation on a Highly Carboniferous Shale, During Which the Temperature Was Raised Too Fast, Producing Checked and Bloated Ware

During the oxidizing process, gases are formed and released from the brick. These gases are generated by the oxidation or slow burning of the carbon or sulphur, or both. If before oxidation is completed, the temperature rises to that degree at which the piece softens and starts to vitrify, the outer skin or surface of the ware vitrifies first, the pores are sealed, and it becomes impervious to the passage of gases, either in or out.

Unfortunately, the oxidation of the impurities proceeds, due to the fact that the oxygen in the ferric oxide present is utilized to oxidize the remaining impurities and the gas keeps coming; in addition a new menace is created—for the reduced iron melts or fuses at a lower temperature and what is practically a puddle of melted material and gas under pressure obtains in the center of the piece.

Thus we have a condition of a soft piece of ware, with a fused interior, producing gases that cannot escape thru a vitrified non-porous skin. The result is the inevitable production of bursted or swelled brick.

The point of it all is that the swelled ware is due almost entirely to a heat that was not controlled. By the use of a pyrometer it is unbelievable that such a condition could develop, because it would be feasible to hold the temperature *below* that point at which vitrification starts, until after the oxidation had been completed.

There are, of course, other means of knowing this—by watching the blue smoke from the stack, by the settle, by color of the heat, by the trails, etc.—but none are infallible, altho all should be used in conjunction with the pyrometer.

Plate No. 5 shows the first burn recorded by a new pyrometer installation on a highly carboniferous shale. On this burn the temperature was raised too fast and exceeded a safe oxidizing temperature before all the carbon was removed.

The heat was finally cut down when the temperature had reached 840° C., but the damage had been done. The carbon was ignited and temperature kept raising until it reached 980° C. at which point the heat in the carbon was exhausted and burning was resumed.

The biggest portion of the ware was bloated and in addition, was crushed and checked in the bottom due to the fast watersmoking.

Plate No. 6 shows the burning curve used after the pyrometer had been installed for a few months. This produces a high percentage of first quality brick.

(C) VITRIFICATION AND SETTLE

A record of settle is exceedingly valuable to the burner. It is an indication of work being done and, consequently, the rate of settle at any given time is a splendid indicator of what is being accomplished in the kiln.

During vitrification, the shrinkage or settle is rather difficult to control (and it is also very necessary to control it) inasmuch as the *immediate* settle is the product of heat generated *at a previous interval*. Conversely the heat that is generated will not cause settle immediately, it must first be absorbed by the ware and due to the absorption of this additional heat, it starts to vitrify and shrink.

If the ware settles or vitrifies too soon, too fast or too slow, too much or not enough, the results *cannot be first class*.

If it settles too soon, it usually means that the heat in the top of the kiln is excessive and that it has reached a vitrifying temperature before the bottom is clear, resulting, usually, in an overburned top and a good bottom, or a good top and an underburned bottom.

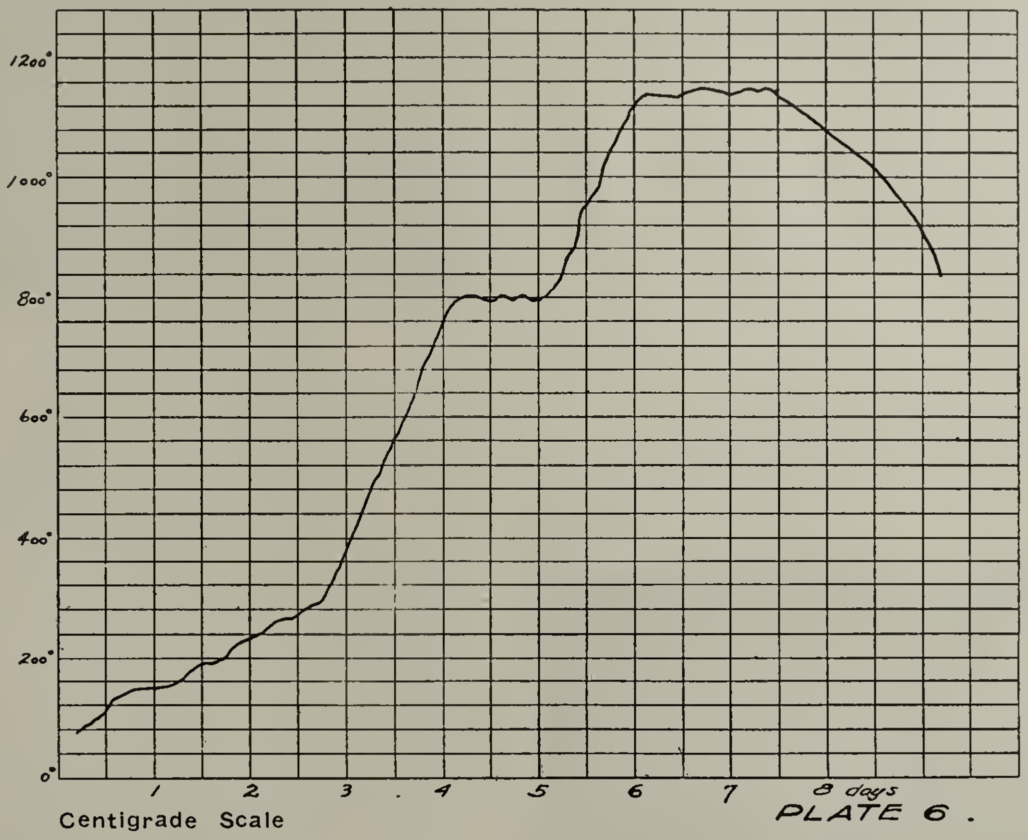


PLATE 6.

Burning Curve Employed on the Same Kiln From Which the Record Shown in Plate 5 Was Taken. This Shows the Curve that Produces High Percentage First Quality Ware

If the kiln settles too fast, the heat is excessive and kiln marked brick and an underburned bottom usually result.

If the kiln settles too much the heat is excessive and prolonged too much; the ware is usually overburned and kiln marked.

If the kiln doesn't settle enough the temperature was not carried high enough and soft ware is inevitable.

In all of these cases it must be noted that each result is caused by an excess or deficiency of heat, by an ill-timed or an improper distribution of heat. The settle or the vitrification of the clay is caused by the heat, by a rise in temperature—and the pyrometer indicates instantly when the temperature starts to rise or fall.

If the temperature approaches that degree at which vitrification sets in, before it is safe—the pyrometer indicates the fact and steps can be taken to hold it back.

If, during vitrification, the temperature tends to rise too fast, the pyrometer shows it accurately, and *before the damage is done.*

The vitrification of clays is a function of time and temperature, and with the pyrometer the temperature can be controlled and governed.

SALT GLAZING

This is a specialized operation confined mostly to sewer-pipe, stoneware, some grades of hollow-tile and brick.

It has been proved that every clay that will take a salt-glaze, will do so best at a certain temperature or above. At or above this temperature the body is in the most receptive condition to take a glaze. If the salt is applied below the correct point, the ware is liable to come out bare and streaked, particularly in the bottom courses.

After experience and observations, the salting temperatures are determined and by using a pyrometer, the burner has another almost infallible ally for salting.

COLORS

If in the division on salt glazing the word color is substituted for glazing in the second and fourth paragraphs, the same statements will apply, for the oxidized and reduced colors are functions of temperature. This temperature can be ascertained closely and colors in face-brick begin to repeat themselves oftener in kiln after kiln—when the pyrometer is used.

It must be understood that there are many other possible studies that can be made with profit, but for lack of space, they are not mentioned, altho the general scheme of experiment and reasoning is indicated.

A SUMMARY

This series of articles on the thermo-electric pyrometer, which has appeared in this and the three preceding issues of "Brick and Clay Record," was written with a view toward taking the mystery out of pyrometry, to fairly teach the basic principles of the theory and construction of the instruments and, finally, to indicate some of the methods for securing the maximum good and efficiency from the entire installation.

HOW TO SELECT INSTRUMENTS

It was first shown that in the selection of pyrometer equipment there are four important points to be incorporated in the installation in order to secure reasonably long life, low maintenance cost and satisfactory results. They are:

(a) The equipment must combine ruggedness with accuracy.

(b) The instruments must be of the type called "high resistance," in which the internal resistance is at least 200 ohms.

(c) The couples should be of a type called rare metal, composed of platinum and platinum rhodium.

(d) The equipment should be installed with care and due consideration should be given to exterior influences that could affect the readings.

In this and the preceding installment, the idea has been to show a few of the ways in which the pyrometer can be used, indicating just enough to lead and direct the thought along pyrometric lines. It would be impossible to cover the entire subject in a series of articles such as is now being brought to a conclusion, as there are so many small, but important points, all of which have a share in the perfectly marvelous results that have been secured and which are due almost wholly to the use of the pyrometer.

PRACTICAL METHODS *for* TESTING REFRACTORY FIRE BRICK

A Description of Standard Tests, the Making of Which Discloses Some Information Regarding His Product That Should be of Value to the Refractories Manufacturer

By C. E. Nesbitt and M. L. Bell

Read Before the American Society for Testing Materials at
Atlantic City, N. J., June 27 to 30.

(*Continued from August 1 Issue.*)

THE ABILITY OF BRICKWORK to stand up under loads when highly heated is of great importance. A comparative test consisting of a modified Brinnel ball test was used by heating the brick to 1,250° C., removing from the furnace and then forcing a 2½-inch steel ball into the brick under a pressure of 1,600 pounds. The depth of the impression was then measured when cold (Figs. 11 and 12).

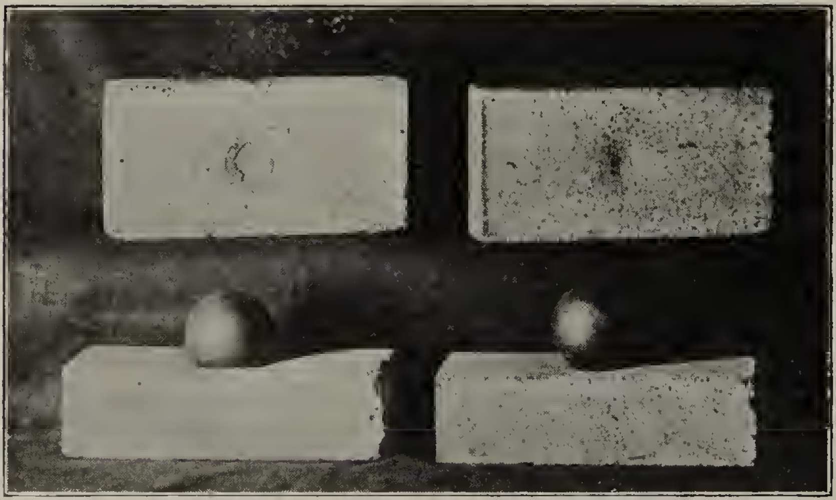


Fig. 11—Characteristic Compression Test Specimens, Showing Depth of Ball and Corresponding Impressions

EXPANSION, CONTRACTION AND FUSIBILITY

These are important qualities of fire-brick. For these tests the usual methods were followed, and they need not be mentioned further at present (Figs. 13 and 14).

RESULTS OF TESTS

As a result of a large number of tests following the methods which have been outlined, it was found that fire-brick tended to group themselves according to density. In general, brick of high density, all other factors being equal, have the most desirable qualities, namely, least abrasion, good resistance to slag and least compression. Spalling is very slightly increased, but not to a dangerous extent if brick are not overburned.

As a measure of density, the apparent specific gravity is used—obtained by weighing and measuring the brick and not by suspension, as is usually done. Results show that various makes of brick have characteristic values for apparent specific gravity and that the method of manufacture greatly influences the density. A series of preliminary experiments had shown the importance of pressure and moisture in producing a dense brick, and this test was followed up by a more elaborate series. A standard fire-clay mixture was used, in which the moisture was varied from 4 to 12 per cent., and all brick were pressed at 2,000 pounds per square inch, then burned in a regular kiln. Results of tests applied on this series are shown in Table I and Fig. 15.

Table I.—Results of Tests on Fire Brick of Varying Moisture Content.

	Percentage of Moisture.					
Properties Considered.	4	6	7	8.5	10	12
Apparent Specific Gravity	2.11	2.17	2.19	2.16	2.10	2.06
Compression at 1350° C., depth of impression, in	0.49	0.44	0.43	0.51	0.53	0.57
Expansion per foot of length at 1350° C., in	0.064	0.064	0.045	0.045	0.049	0.050
Impact at 260° C., height of drop, in	18	33	35	35	31	30
Abrasion at 1350° C., in five minutes, in	0.024	0.008	0.012	0.016	0.028	0.020
Slag Penetration, sq. in.:						
Blast-furnace slag	0.37	0.30	0.24	0.28	0.43	0.36
Open-hearth slag	0.82	0.48	0.58	0.66	0.66	0.74
Heating-furnace slag	1.05	0.35	0.29	0.42	0.42	1.26

Power-pressing a brick during manufacture up to 1,500 pounds per square inch has been found to materially improve the quality of most fire-brick; beyond that figure very little improvement is made. A comparison of tests on a high-pressure, low-moisture brick and a hand-made, repressed, ordinary-moisture brick, both brick of the same mixture, is given in Table II.

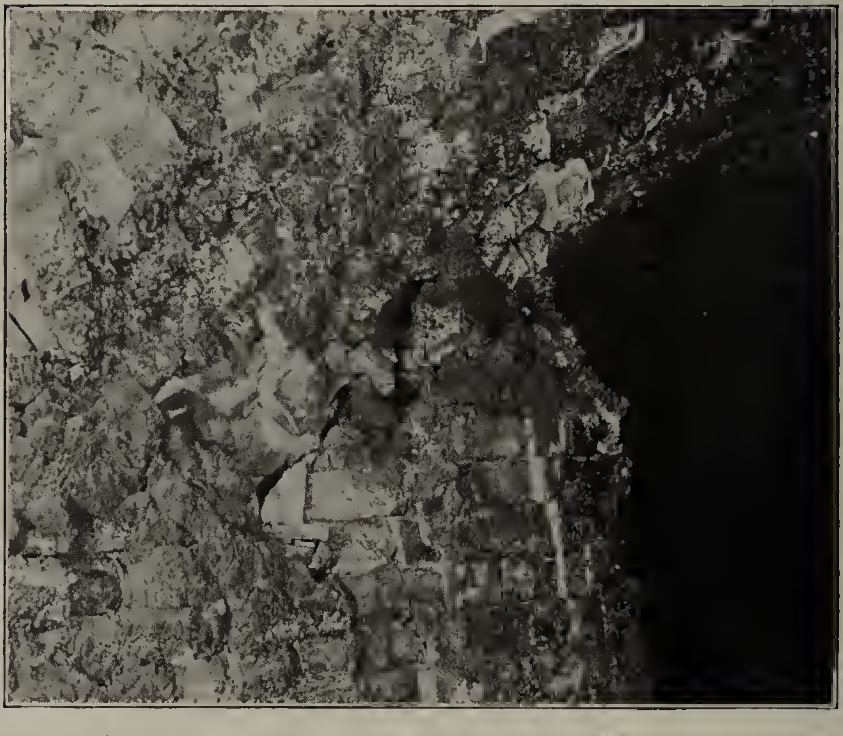


Fig. 12—Spalling, Accelerated By Compression, of Entire Corner of Air Flue in Open-Hearth Furnace

The laboratory methods suggested have been developed mainly with reference to brick to be used in iron and steel plants. When modified they are applicable to almost any condition of service to which the brick will be subjected. If a brick is to be used in a boiler setting, copper or lead smelter, calcining or roasting furnaces, the test should imitate these conditions, in order that the results be comparative. Conditions of service must be studied to learn what is demanded of a brick.

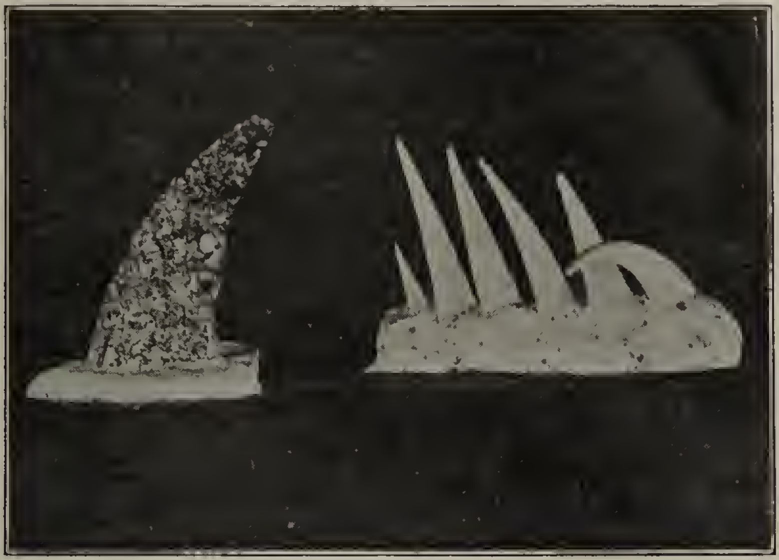


Fig. 13—Characteristic Softening Test Specimens

When a laboratory test has been developed it must be confirmed by actual service tests. To compare the life of two similar furnaces built of different materials, or even the same furnace built of different materials at different times does not necessarily mean that the material showing the longest life is the better, since the operating conditions may have been decidedly different. Conclusions can only be drawn when all conditions except brick quality are the same.

Table II.—Results of Tests on a High-Pressure, Low-Moisture Brick and a Hand-Made, Repressed, Ordinary-Moisture Brick.

	Kind of Brick	
Properties Considered.	Pressure of 1,500 lb. per sq. in., Moisture, 7 per cent.	Hand Made, Repressed, Ordinary Moisture.
Compression at 1350° C., depth of impression, in.	0.29	0.55
Expansion per foot of length at 1350° C., in.....	0.062	0.059
Impact at 260° C., height of drop, in..............................	45	28
Abrasion at 1350° C., in five minutes, in..................	0.02	0.04
Spalling, loss, per cent......	9.4	10.6
Slag Penetration, sq. in.:		
Blast-furnace slag	0.27	0.56
Heating-furnace slag	0.26	0.67

To derive the greatest benefit the consumer and manufacturer must work together. The manufacturer's interest must not cease with the shipment of his product. The consumer should provide all reasonable facilities for the manufacturer to study his product in actual service. It is only by such exchange of information that the best results can be obtained.

In this paper only the main points of the tests have been dealt with, while a more detailed description of apparatus and methods is appended.

METHODS OF TESTING REFRACTORY FIRE BRICK*

IMPACT TEST—CONSTRUCTION OF APPARATUS

The machine for determining the resistance to impact consists of two vertical uprights 15 ft. high, supporting two vertical and parallel 1½-inch angle irons. The angle irons are placed so that their enclosed angles face each other and are braced 3⅜ inches apart measured from the inside of the angles, so as to allow a ball 2½ inches in diameter to fall freely between them, the sidewise movement of the ball not to exceed ¼ inch. These angle irons are adjusted so that brick of different heights may be placed under them and are marked, beginning at the lower ends, so as to clearly designate successive heights of 2 inches. The test specimen is placed directly below the angle irons on a steel block of sufficient size to give a solid foundation. The upper face of the block is perfectly smooth and at right angles to the angle irons. The block is 6½ by 15 by 12 inches and weighs 332 lbs. The falling weight is a steel ball 2½ inches in diameter weighing 2.34 lbs.

OPERATION OF TEST

The brick to be tested is first carefully inspected, and, if necessary, ground on a carborundum wheel so that it sets firmly on one of its ends. On the other end of the brick the diagonals are then drawn to locate the center. The brick is now placed in a cold furnace and heated at a uniform rate from atmospheric temperature to 260° C., so that at least 1 hour is required to reach the final temperature. The final temperature (260° C.) is maintained for not less than 3 hours.

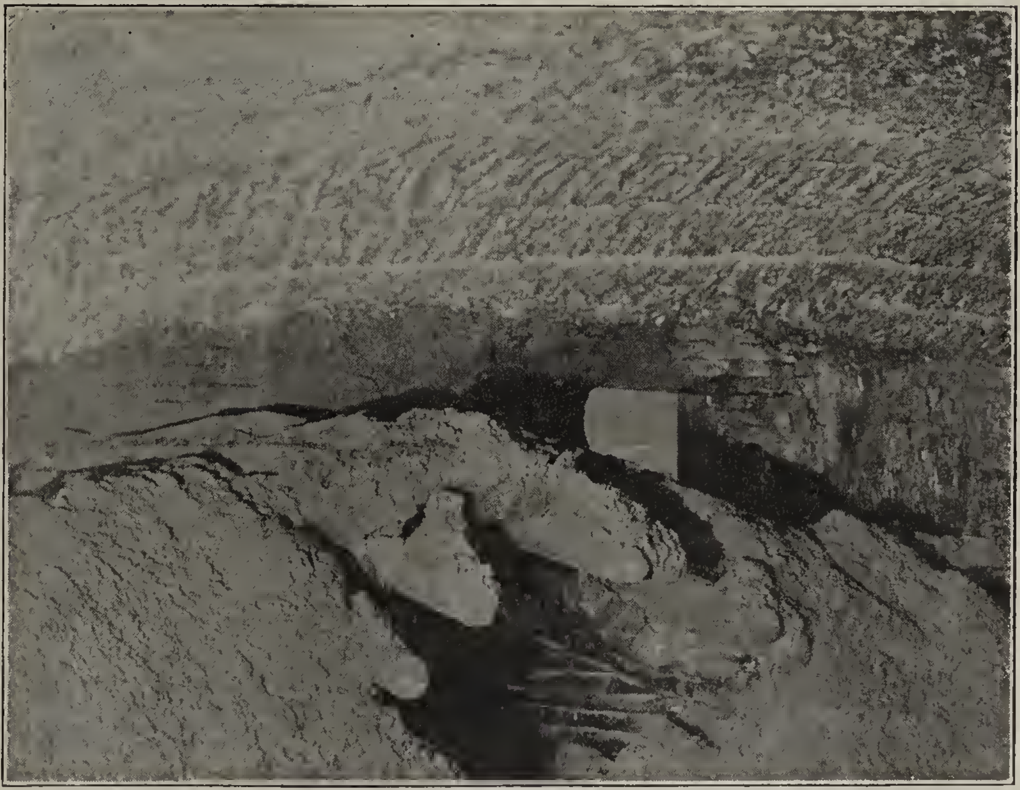


Fig. 14—Gas and Air Ports Inside Open-Hearth Furnace. Note Slagged Condition of Walls and Roof, and Total Disappearance of Brick Around Water Cooler in Foreground

The brick is now ready for the test and is placed on the steel block, so that the ball between the angle irons touches the brick at its marked center. Iron blocks are placed around the brick until they are nearly level with the top of it, to prevent sidewise movement, but the brick is not wedged. The ball is now dropped from a pair of tongs on the end of the brick at successively increasing heights of 2 inches until the brick fractures. Any fracture radiating 1 inch or more from the point of contact of the ball is considered a fracture, and the distance in inches of the last drop is the result of the test. If the ball is allowed to drop again from the last height the brick gives off a dead or broken sound. The clear ring of a sound brick has disappeared.

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*At the present time the machines and apparatus here described are in a state of development and while they have been standardized for the test, the machines and methods themselves are not necessarily final.

COMPRESSION TEST—CONSTRUCTION OF APPARATUS

The machine for determining the resistance to compression is a modified Brineil ball testing machine and consists of a 4-inch I-beam, 10 ft. long and weighing 75 lbs., so arranged as to act as a second-class lever arm; that is, one end is the fulcrum and at the other end the weight is applied so as to produce the compression on the brick placed 6 inches from the fulcrum. All bearings are knife-edged. The fulcrum end of the bar is mounted between two vertical uprights, 10-inch channel irons, and so arranged that the height of the fulcrum may be adjusted by a hand wheel to suit brick of varying thickness. Six inches from the fulcrum towards the weighted end of the bar a spherical depression marks the location of the ball. The ball is a steel ball 2½ inches in diameter weighing 2.34 lbs. The brick to be tested rests on a solid foundation directly below the depression. The bar alone produces a pressure of 850 lbs. on the ball, and the balance of the weights is added at a uniform rate of 25 lbs. per second by means of dry sand which flows from a hopper into a bucket attached to the end of the bar. Bar and sand together produce a total load on the ball of 1,600 lbs.

OPERATION OF TEST

The brick to be tested is placed in a cold furnace and heated slowly to 1,350° C. The heating as a convenience is done over night, at a uniform rate not to exceed 260° C. per hour. Total time of heating should in no case be less than 6 hours. The brick before testing should be maintained at 1,350° C. for not less than 3 hours.

The brick is now removed from the furnace and placed flat on the foundation beneath the bar, and the bar lowered so that when the ball is in position in the depression, it is also in contact with the center of the upper surface of the brick. The weighted end of the bar is then gently released and the flow of sand immediately started. The time required to remove the brick from the furnace and apply the load is less than one minute. The pressure is maintained for five minutes, starting from the time the bar is released. The brick is then removed from the machine and allowed to cool. When cold the depth of penetration produced by the ball is measured by placing centrally over the depression a flat rectangular plate 3½ inches square (¼ inch thick), at the center of which is mounted at right angles to it a Brown and Sharpe micrometer depth gage. The lower end of the stem of the micrometer is rounded so that it has the same radius as the 2½-inch ball. The depth at the center of the depression is measured to 0.001 inch.

ABRASION TEST—CONSTRUCTION OF APPARATUS

The abrasion testing machine consists of a carborundum wheel mounted on a suitable stand and revolving vertically. In front of the wheel and resting on the stand is an L-shaped plate 6½ by 16 by ¼ inches resting on roller bearings, and forced towards the wheel by means of a right-hand lever arm, and suspended weights. The upper surface of this plate is 1¼ inch below the horizontal radial line drawn from the center of wheel. All points of contact on the lever arm are knife-edged and friction is reduced to a minimum. The carborundum wheel is 18 inches in diameter and has a 2-inch face and 1½-inch center hole. The wheel is motor driven and has a surface speed of 1,640 ft. per minutes and is to be redressed when when the corners wear away ¼ inch of their original radius, or as soon as the face ceases to be at right angles to the side of the wheel. The pressure of the brick against the wheel is 10 lbs. per sq. in. if brick in contact with the wheel, excluding the pressure required to move the brick.

OPERATION OF TEST

The brick before testing is ground cold to a uniform thickness of 2.35 inches for 2½-inch brick and 2.80 inches for a 3-inch brick, and the ends ground so that the testing wheel cuts through this thickness. The depth of this preliminary cut is measured at its center, using

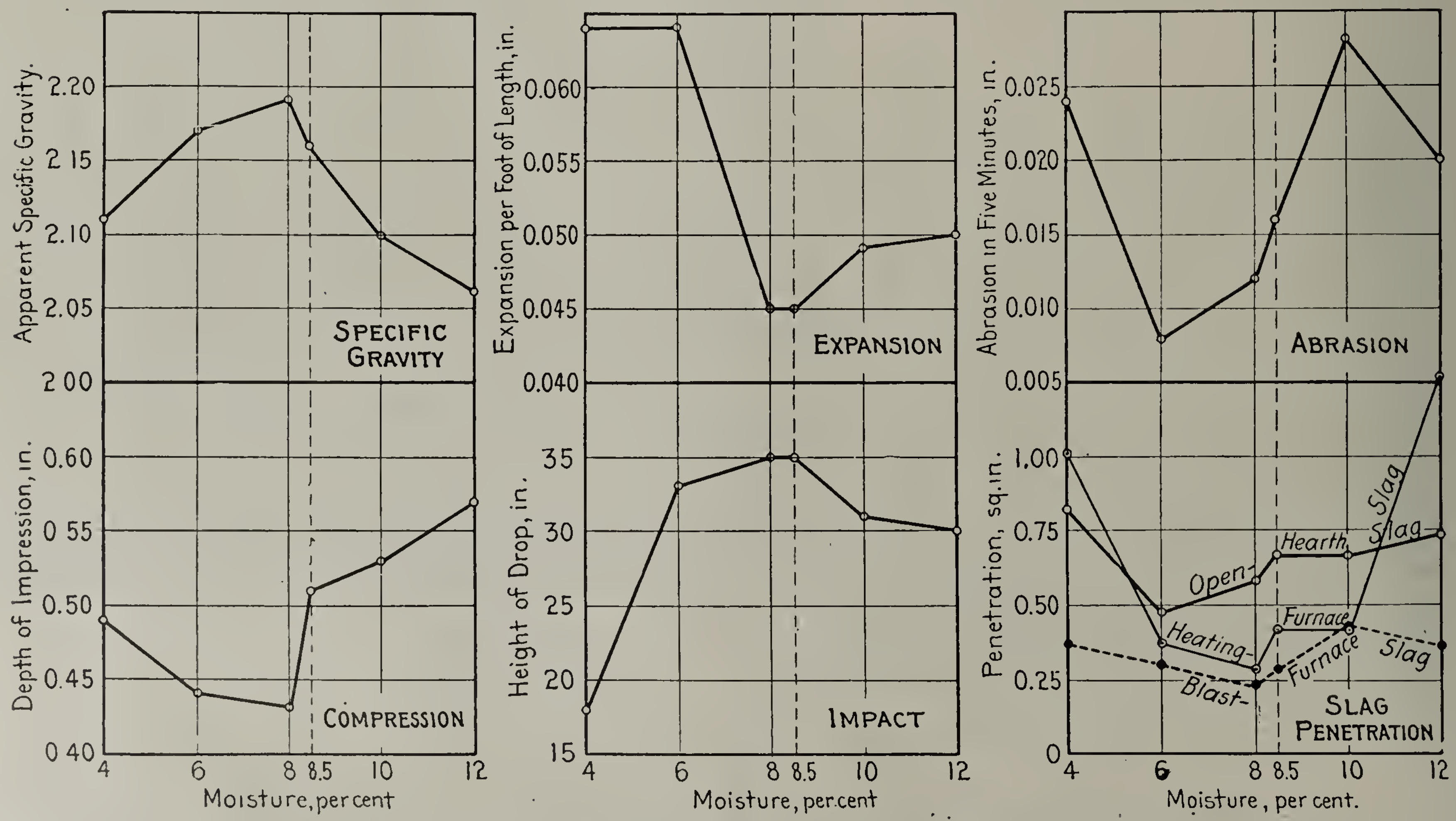


Fig. 15—Influence of Water Used in Manufacture on Physical Properties of Fire-Brick

the rectangular plate described under the compression test. The brick prepared for test is heated the same as under the compression test, except in the case of top-wall and pipe brick, which are heated the same as for the impact test.

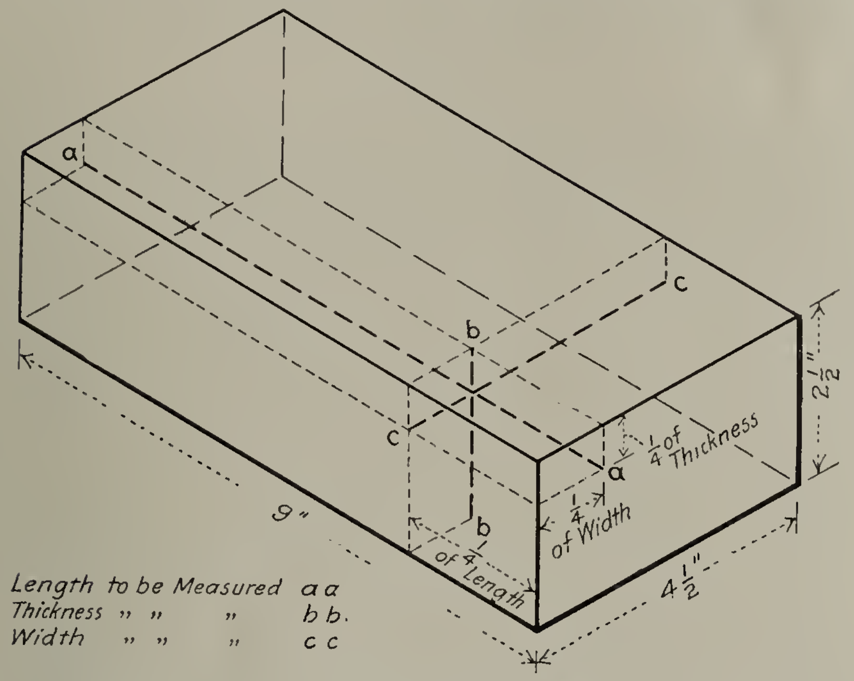


Fig. 16—Axis Along Which Measurements Are Taken in Determining the Size of a Brick

The brick is then removed from the furnace, placed flat on the plate in front of the wheel so that the wheel enters the preliminary cut, and is then abraded for five minutes. The time is taken with a stop-watch. In the case of soft brick which abrade very rapidly the test is run for a fraction of the period, and then calculated to the five-minute period. The brick is now returned to the furnace and reheated for not less than one hour. The test is then repeated on the other end of the brick. When cold the depth of cut on both ends is measured, and the difference between the preliminary and the final cuts is the result reported.

SPALLING TEST—OPERATION OF TEST

Preparatory to the test the furnace is heated to 1350° C. and held at this temperature for about one hour. The brick to be tested are dried at 100° C. for at least five hours, weighed, and then placed in the doorway of the furnace, their ends flush with the inside of the wall. In case a sufficient number of brick are not being tested to entirely fill the doorway, the remainder of the space is filled in with other brick to insure heating the ends only. The brick are now heated for one hour and plunged separately into two gallons of water at 20° C. to a depth of 4 inches and held there for three minutes. The brick are then removed and allowed to dry for three minutes in air. To indicate three-minute periods a stop-watch is used. The brick are then placed in the door-way of the furnace as before and the operation repeated for a total number of ten times. The brick are now dried at 100° C. for at least five hours and all particles which can be easily broken off with the fingers removed. The brick are then weighed and the percentage of loss calculated from the original weight.

SLAGGING TEST—OPERATION OF TEST

In preparing the sample for the slagging test, the 9 by 4½-inch unbranded side of the brick is bisected by a line across the narrow dimension and diagonals drawn on each half. At each intersection of the diagonals a circular cavity is drilled 2½ inches in diameter and ½-inch deep at the sides. The drills are $\frac{5}{16}$ inch thick and 2½ inches wide, measured diagonally across opposite corners, while the point of the drill includes an angle of 150 degrees. A template is made of $\frac{3}{16}$-inch sheet steel to insure that all drills are ground properly. To insure a standard depth of cavity, two inverted U-shaped pieces of metal are clamped to each drill when in use and adjusted so that drill cannot enter the hole more than ½ inch, measured on the side of the drill. The cross-section of the cavity passing through the deepest point has an area of 1.7 sq. in., and is checked up for size and depth by a template. The pressure used in drilling must not be so severe as to partially crack the brick.

After the cavities have been drilled and cleaned of loose material the brick are placed level in a cold furnace and heated as in the compression test. When 1350° C. is reached 35 g. of standard blast-furnace slag are placed, by means of a long rod with a spoon-shaped end, in one cavity, and 35 g. of standard heating-furnace slag in the other cavity. The slags used shall have approximately the following analysis and melting points:

	Blast-Furnace Slag.	Heating-Furnace Slag.
Silica (SiO_2), per cent	38.0	35.0
Iron (Fe), per cent	1.5	44.0
Manganese (Mn), per cent	1.0	0.5
Alumina (Al_2O_3),	14.5	6.0
Lime (CaO), per cent	42.0	1.5
Magnesia (MgO), per cent	2.0	0.5
Sulphur (S), per cent	1.0	......
Meltin Point, deg. Cent	1260	1260

The fineness of the slag is such as to pass a 40-mesh sieve. The brick are kept at a temperature of 1350° C. for two hours after the slag is added, at the end of which time the furnace is allowed to cool, or the brick may be removed from the furnace and allowed to cool in air. The brick when cold are sawed lengthwise at a right angle to the unbranded side, so that one side of the cutting wheel cuts thru the center of the drilled cavity, and this area of slag penetration, together with the cavity is measured with a planimeter. The area of the original cavity is subtracted, giving the result in square inches of slag penetration. The wheel used for sawing the brick is a carborundum wheel 12 inches in diameter; ⅛ inch thick; 1½-inch center hole; grit 16; bond NCH.

SOFTENING TEST—OPERATION OF TEST

The test specimens for determining the softening temperature are cut by means of the saw used in slagging test from the corner of the brick, in the shape of a triangular pyramid similar to that of a Seger cone. They are 3 inches high, and the base should not be less than 1 inch on the side. The test specimen, together with a series of Seger cones, is set in some good refractory material which will not flux with the sample. The series of cones used includes numbers both below and above the cone at which the sample is supposed to soften. The whole is placed in a gas-fired furnace and heated at a uniform rate, not to exceed 600° C. per hour. The softening temperature is considered that at which the specimen either bends double, sags, or puffs out of shape and is determined by Seger cones.

EXPANSION AND CONTRACTION—CONSTRUCTION OF APPARATUS

The machine used for the measurement of expansion and contraction consists of a micrometer mounted on a steel post, which in turn is mounted on a steel plate 24 by 6 by ½ inches. To the stem of the micrometer is fastened a steel disk 1 inch in diameter and ⅛ inch thick. In line with the micrometer is a second steel post on which is mounted a ¼-inch sliding steel rod with a similar circular disk, as with the micrometer. The rod can be adjusted so as to determine measurements up to 14 inches. To insure that this rod is properly set standard bars 3, 5, 9, 11 and 13 inches long are used.

OPERATION OF TEST

In preparing the brick for the test, the ends of the brick are ground so as to be parallel to each other at right angles to the sides. The length is then measured cold. The brick is then heated as in the compression test,—or as for the impact test in the case of top-wall and pile brick,—removed from the furnace and measured hot. The removing from the furnace and measuring usually requires about thirty seconds. The result is calculated to inches per lineal foot.

SIZE—OPERATION OF TEST

The size is determined by the use of the micrometer described under expansion and contraction. All measurements are made while the brick is at atmospheric temperature. Small particles of sand, clay, or foreign matter adhering to the brick are removed before measuring. The locations for taking the measurements are shown in Fig. 16. If the bricks are of a different size than a standard 9-inch brick the measurements are made in the same way but at a point one-fourth of their respective dimensions.

(*Concluded.*)

* * *

Fire-Brick Seems to Lead in Demand

There is an extra heavy demand for fire-brick, according to reports being received in New York from several manufacturing centers. Orders in abundance are reported as being placed for 1917 delivery. The building materials market is generally regarded as steady, most of the changes occurring being in the iron and steel lists and other metals. Clay products remain firm, while contemplated increases in the prices of pipe and flue linings have been postponed.

VERSATILITY *of* BRICK PAVEMENTS SHOWN *in* "SIXTH CITY"

At least three events have taken place in Cleveland, Ohio, during the past few months which go to show that brick paving is not only capable of withstanding ceaseless traffic and heavy trucking without the slightest sign of wear, but also that it may be put to use as a dancing floor with equal efficiency. These interesting sidelights, which reflect favorably on the best of all paving materials, have developed out of the many activities of "Sixth City" residents. They show the versatility of brick pavements; their economy in the long run and proof that they are pavements of service.

These activities include the investigation made by the classes in highway engineering of the Case School of Applied Science at University Circle, under the direction of Maurice B. Greenough, which showed by actual count that more than five thousand vehicles of all descriptions passed across University Circle in one day. In an accompanying illustration is shown the Case School of Applied Science and, altho the view is probably not large enough and, therefore, does not show sufficient detail to give an idea of the condition of the brick paving at this point, it might be said that, after six years of service, this paving is in the best of condition. This street is laid with vitrified brick on a macadam base.

Brick-paved Street at University Circle, Cleveland, Where Five Thousand Vehicles Pass in a Day. This Record Was Taken By Students From the Case School of Applied Science

One of the steepest long haul grades in the city of Cleveland is Cedar Road. It has been conceded that this thorofare gets the heaviest trucking in the municipality because it is the one direct road to Cleveland Heights, which suburb is in the course of rapid development. Consequently, a large quantity of building materials is constantly passing over this road. In spite of this fact, the pavement, which is laid on an old macadam base with hillside brick, shows little sign of wear in the three years during which it has been in service.

Probably the most unique Fourth of July celebration ever held in Cleveland, was staged by the Northland Avenue Residents' Association. While many features marked this celebration, the chief among these was the dancing on the brick pavement, which was waxed and sprinkled with a little cornmeal. The entire width of the pavement—one hundred feet—was set aside for this purpose. The dancing was conductetd at night under arc lamps, additional incandescent lamps and red fire. According to Joseph C. Huber, secretary of the association, whatever doubt was expressed over the feasibility of the scheme was dissipated by the fact that the residents of this section of the city are planning other events wherein dancing on the brick may have a part.

The Parade—a Part of the Northland Avenue (Cleveland) Residents' Association "Fourth of July" Celebration, Wherein the Brick Pavement Was Converted Into a Ballroom Floor

ENERGIZING *the* MONTHLY STATEMENT

Wherein Are Suggested a Few Methods for Putting New Life Into an "Old Nag" in Business Routine and Making it More Than Pay for Its "Oats"

By W. D. Parker

ALMOST all lines of business, both wholesale and retail, use the monthly statement as a means of securing regular payment of their outstanding accounts. But there is a great deal of difference in the results obtained by various business houses. The purpose of this article is to point out this difference and make such suggestions as will be of assistance to one who has not given the subject special attention. It is an old saying that "anything that is worth doing at all is worth doing well." If monthly statements assist at all in bringing in the money—and they certainly do—then the *best* way of using them will bring in the most money, or in other words, add to the percentage of efficiency and you add to the profits.

CAREFUL WORK SHOULD CHARACTERIZE LAYOUT

The first important point to consider is the form of statement to use. Very often this matter is left entirely to the printer, as tho it were a matter of no importance at all. He is merely asked to quote on so many thousand statement forms and is given a letter head from which to pick out the lines or words to make up the "copy." As nothing is said about the quality of paper, he may use the cheapest and, as the job is usually a question of price instead of quality, he does not feel it incumbent on himself to give any advice in this regard. The result is that the majority of monthly statements in general use are not nearly as effective as they might be if well laid out and ruled, and a paper used that would cause the recipient to give it more than passing attention.

This being true, there is a great opportunity for one who appreciates the difference in results between the use of the best and the cheapest stationery to make much of the possibilities that lie mostly dormant in the printing of the monthly statement. If every one used the most effective form, its general use would cause it to lose some of the efficacy it now has, as it is in part the special attention that a "different" statement attracts that makes it so especially efficient.

A STATEMENT THAT WAS PARTICULARLY SUCCESSFUL

One form of statement that the writer knows to have been very satisfactory in use did not cost much more than the ordinary kind. It was printed on pink bond paper and cut note sheet size instead of the regular statement size. This made it stand out on the desk when the mail was opened by the debtor and was not so easily mislaid or improperly filed. There were two columns for items, one headed "Items Now Due" and the other "Items Past Due." At the bottom of the statement the following words appeared: "This statement is not a dun for items not due, for those due or past due we would appreciate your prompt remittance." You will note that there was no column for items not due, but the form of wording used would cause the recipient of the statement to go over it to see if there was. The whole purpose of this statement was to get the debtor to pay attention to it on its receipt, instead of laying it to one side.

Next to an effective form of statement the matter of regular mailing is the most important. It is customary to send statements the first of the month, or somewhere near that time. In some business houses it depends on whether the office force has the spare time or are busy at something else—putting out circular letters or attempting to balance the ledger, for example. In case they think they are busy, then the statements are left for the days when there is nothing else to do. The effect on the debtor can readily be seen—if the statement comes in so late in the month that he has paid out a considerable amount to others he is quite likely to let it go to the next month. If finances work out badly for him during this month he may not be really able to pay the next month, and another slow account has been added to the creditor's books. The way to solve the problem is to tell the bookkeeper that the statements must be out on the first day of each month, no matter what else must be held up, and to make him personally responsible for the carrying out of this order.

DISCOUNT SHOULD SHOW UP STRONG

Where a discount is allowed for payment within a certain time this should be indicated on the statement in a manner that will show up strong. If printed, red should be used for the line stating the discount, but a rubber stamp with purple ink is even more effective. Where no discount is allowed after the statement is sent, but would have been allowed if paid sooner, then the discount should be emphasized on the bill sent. There are two views on this matter of allowing discount, one that it is given because others do, but that the creditor would prefer the debtor did not take advantage of it, the other, that the customer who discounts is the most valuable customer in the end, even if the creditor does apparently lose money by his taking a discount. This latter view the writer entirely agrees with, and therefore believes that where a discount is allowed at all, it cannot be too strongly brought to the attention of the debtor.

* * *

N. J. Manufacturers Seek Improvements in Shipping

Improved freight conditions is the present slogan of the Monmouth (N. J.) Manufacturers' Association. It was the keynote of the after-dinner speaking which followed the first shore dinner and outing of the association at Seidler's Beach recently, and will be the principal topic of the manufacturers when they meet again in September.

Altho comparatively young, the organization is flourishing. Its members have already benefited by minor improvements in traffic conditions, particularly those about Matawan and Keyport, the heart of the brick and tile industry in Monmouth county.

The members have reached the conclusion that the New York and Long Branch railroad should allow an extension from Matawan to Keyport and should wipe out the ten per cent. tonnage charge between those points. Another improvement sought is the lengthening of hours during which freight stations are open. Many of the manufacturers have been handicapped and have lost trade by their inability to do business in a freight office after five o'clock in the afternoon.

While banded strongly together to guard their interests, the manufacturers who are members of the Monmouth association will not make a point of holding down or otherwise interfering with existing wage scales. This is a delicate subject among the members and one which every member will be allowed to handle as he sees fit. By following this course the manufacturers hope to be able to stick together in order to secure the many advantages that come from association work.

Events of Importance to Louisville Clayworkers

Two developments of great importance to Louisville in a commercial way generally, and to clay products manufacturers directly, have been recorded recently. One of these was an order from the Interstate Commerce Commission which would have the effect of compelling the Louisville and Nashville railroad to open its terminal and switching facilities to competing lines entering the city. It is likely, it is said, that the railroad will appeal to the courts but the shipping interests of the city feel that the order will lead to the end which has long been desired. The Louisville Board of Trade led the fight for the reform. Except for the Chesapeake and Ohio, the Louisville and Nashville, which has an elaborate terminal system, has declined to switch freight that might have been delivered into the city over its lines.

The other matter was the over-subscription, by fifteen or twenty thousand dollars, of the million dollar "factory fund." Brick manufacturers and dealers supported the movement loyally, a number of representatives from local companies participating in the whirlwind nine-day canvass of the city and the concerns themselves contributing. The fund will be employed in bringing new manufacturing enterprises to the city. The new industrial plants which are to be erected will, no doubt, create an attractive market for brick and other clay products.

* * *

Unlimited Possibilities for Profit and Fellowship Foreseen in the Coming Meeting of the National Paving Brick Manufacturers' Association, the Official Announcement of Which is Included Herein

Coming as a supplement to the tentative announcement made in the August 1 issue of "Brick and Clay Record" that the next annual meeting of the National Paving Brick Manufacturers' Association would be held at Terre Haute, Ind., on October 5, 6 and 7, is the official statement of the meeting sent out by Will P. Blair, secretary of the association.

Judging from the chosen meeting place on the banks of the Wabash, and from the points of interest in the adjacent country, the meeting will be a profitable one for those who avail themselves of the Hoosier state's hospitality during the first week of October. Terre Haute, the clay manufacturing center of the Middle West, has much to offer in the way of plant operation and of manufacturing interest, while the city of Paris, Ill., a short distance from Terre Haute, is the point to which those advocating the monolithic type of brick pavement point for proof of the economy and permanence of that type of construction.

A trip of inspection over the many miles of these roads cannot but help to arouse the interest and increase the knowledge of those attending the meeting concerning the monolithic brick highway.

As previously announced, the sessions of the meeting will begin at the Hotel Deming on Thursday, October 5. The following day will be spent, it is believed, in inspecting the monolithic brick pavements at Paris, Ill., while no definite plans have as yet been formulated for the manner in which Saturday, October 7, will be spent. Mr. Blair's announcement of the coming meeting is as follows:

The National Paving Brick Manufacturers' Association expects to conduct a study and conference in brick pavement construction during the first week of October, in the vicinity of Paris, Illinois, making the headquarters of the occasion at Terre Haute, Indiana.

All persons connected in any way officially, or those deeply interested in the roads of this country will be made welcome at this conference. It is undertaken, no less in behalf of the brick industry, than in the sincere belief that the country itself is bound to be profited by such an opportunity.

Engineers whose deep interest in the study and inquiry into the economy of monolithic construction will be pleased with this announcement. The money expenditure for roads is so great that a deep interest as to their economic value is manifest everywhere by chambers of commerce and automobile clubs. This occasion will afford bodies of this character an opportunity to make a careful investigation, and examination into the merits of this kind of road that cannot be gained in an ordinary inspection trip.

The conference will be characterized by a critical study of what may be seen in every phase of the construction and the finished pavement.

Watch for the Names of the Winners

of the Ceramic Students' Essay Contest. They are to be published in the

September 5 Issue of "Brick and Clay Record"

DRILLING *and* BLASTING SHALE BANKS

How Maximum Results Can Be Obtained in a Very Important Department of Clay Plant Operation, at Minimum Cost

By Dwight E. Humphrey
Formerly General Superintendent of the Deckman-Duty Brick Company, Cleveland, Ohio

¶*Unfortunately, Not Every Manager or Superintendent Takes Advantage of the Work That Is Being Done by the American Ceramic Society.*

¶*Many, That Really Need Their Help, Do Not Attend the Meetings nor Subscribe for the Transactions.*

¶*That Is Why We Are Publishing the Following Paper Which Was Read Before the Society at Its Detroit Meeting Held During February,* 1915. *It Contains Some Valuable Information and Should Be Carefully Read.*

THE SELECTION of the proper blast-hole drill furnishes a problem for each shale bank. The blasting qualities of the shale, the height of the bank, and the method of loading and hauling to be used should be taken into consideration. During the last few years we have had considerable experience with a number of different types of blast-hole drills. At present, we use five different types of drills, each possessing peculiar advantages in the particular character of work in which it is used.

OLD HAND DRILL ALWAYS OF USE

The old hand drill (Fig. 1) consisting of a steel drill threaded to a ¾-inch pipe handle, will always be of service for small jobs where it is difficult to supply air or steam. This type of drill is adapted to small holes and to depths not to exceed fifteen feet. It is preferable to the steel and sledge in soft materials such as shale, where only slight blows are required to do the cutting. The cuttings are easily cleaned from the hole with a long handled auger.

A thread bar auger drill, of the type generally used in clay and coal mining, will drill horizontal holes in soft, dry shales. We have successfully brought down a thirty-foot bank by drilling twelve to fifteen holes with a hand drill at the top of the bank, and fifteen to eighteen foot horizontal holes at the bottom with a thread bar augur drill and firing electrically both top and bottom holes at the same time.

A SPEEDY DRILL IN A DRY BANK

The compressed air hammer rotating drill (Fig. 2) will drill small holes in a dry bank faster than any other drill I have ever seen. Where the conditions were good, I have seen a four-foot hole drilled in less than four minutes. Part of the exhaust from these little machines can be turned down thru the hollow drill to blow the cuttings from the hole. Ordinarily 1½-inch holes and six-foot depths are the limits of the smaller size hammer rotating drills. For best results, these drills require about fifty feet of free air per minute, under a pressure of eighty to one hundred pounds. Rotating hammer drills are especially valuable where there are many large pieces to be broken. Adobe blasting or mud capping is wasteful from the standpoint of the use of explosives. Much less dynamite will give better results if well stemmed in the bottom of a small hole drilled to the center of the piece to be broken.

Steam or air-tripod drills are adapted to vertical or horizontal holes up to four inches in diameter (Fig. 3). Depths greater than twenty feet can be reached, but the long steels required for deep holes are difficult to handle. Under good conditions, this type of drill will make sixty to ninety feet of vertical hole and twenty to fifty feet of horizontal hole per day.

THE SECRET OF FAST DRILLING

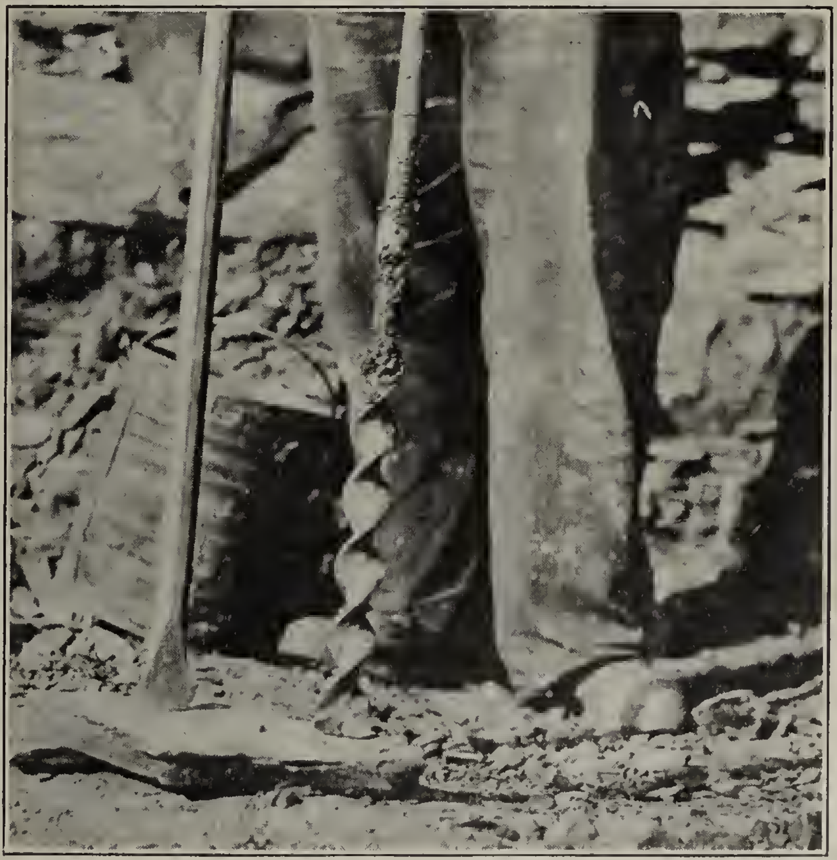


Fig. 1—Hand Drill, Consisting of a Steel Drill Threaded to a ¾-In. Pipe Handle, Which Is Found Particularly Useful for Small Jobs Where It Is Difficult to Supply Air or Steam

The secret of fast drilling in shale is to dress the drills to the shape of a blunt chisel about one-quarter-inch wide, instead of drawing them out to a sharp cutting edge. The blows from the blunt chisel drill will reduce the size of the cuttings so they may be washed out of the hole, as fast as the drill progresses, by a jet of water from a small pipe fed down to the bottom of the hole. For rough ground, which will not permit the use of a well drill, or for ledge blasting the tripod drill may be found very satisfactory.

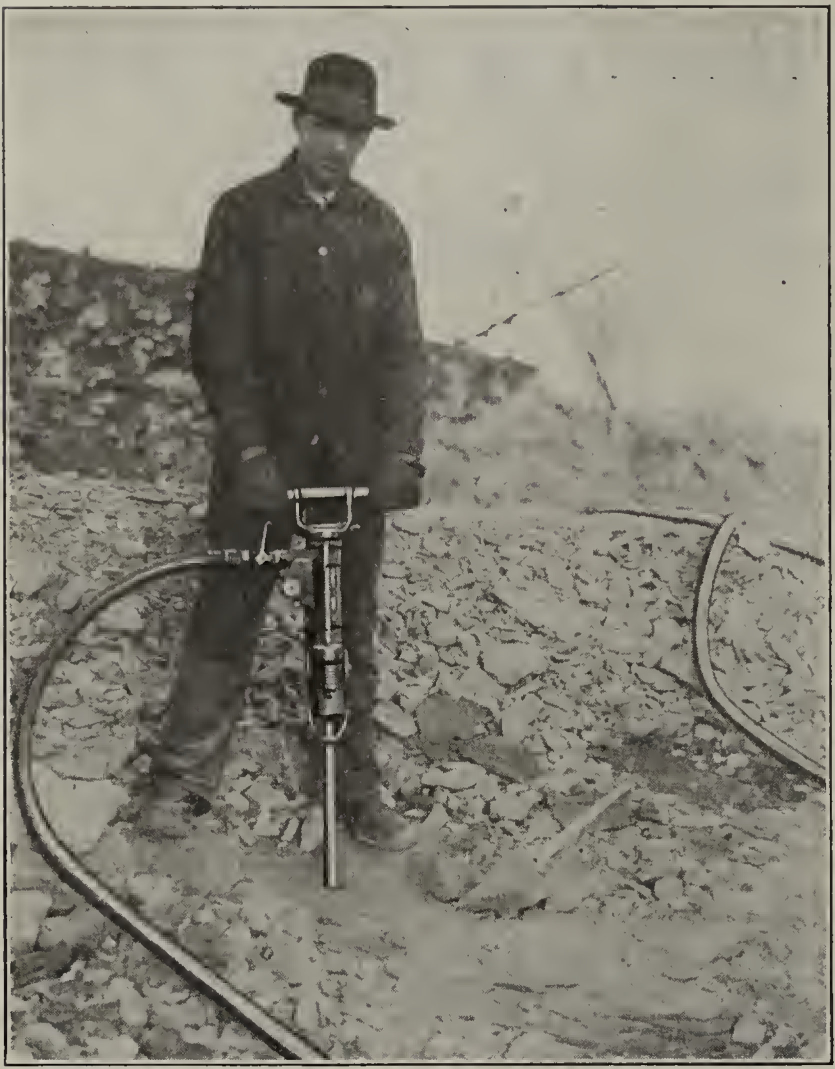


Fig. 2—The Compressed Air Hammer Rotating Drill That Will Put Holes in a Dry Bank Faster Than Any Other Drill in the Writer's Experience

The well-hole type of drill (Fig. 4) has a decided advantage over the tripod drill because it is a complete unit in itself. It is not necessarily dependent on a supply of steam or air from the power house. We at first tried out the large diameter blast hole in a small way. An old-type spring-pole well drill was erected (Fig. 5) and a couple of five-inch blast holes drilled. The big holes were so satisfactory that we purchased a gasoline-driven horse-drawn drill for one factory and a traction gasoline-driven machine for another plant, where the number of moves and setups made the traction machine more desirable.

The average capacity of a well drill in shale is seventy to eighty feet per day in good drilling. Forty feet per day is considered good service in limestone. We have found that it pays to use a well drill for holes as shallow as eight feet, if the ground be level enough to move from hole to hole without taking down the tower.

TENDENCY IS TOWARD LARGER BLAST HOLES

During the last few years there has been a tendency toward large diameter blast holes. It is generally believed that the explosive action is more complete and instantaneous in large diameter holes. The amount of explosive per lineal foot of hole is greatly increased in large holes. It varies as the square of the diameter of the hole.

In locating blast holes one must depend principally on common sense and experience. There are, however, a few general rules for locating holes which may be of value to the man who is trying big blast holes for the first time. It is generally safe to place the hole one-third to one-half of its depth back from the breast or face of the bank, provided this does not exceed twenty-five feet. The distance from center to center of holes should be one-fourth to one-third of the depth. The amount of stemming should not be less than one-third of the depth of the hole. One pound of dynamite in easily blasted material will bring down four tons of shale. When the face of the bank is not perpendicular, and there is considerable of a toe at the bottom, it is a good plan to spring the bottom of the hole with a small charge, so that a larger proportion of the charge can be located behind the greatest resistance. Blast holes can be located a greater distance from the face of the bank, if the material shatters easily from the shock of the explosion. In case the material does not shatter easily, and there are too many large pieces, the holes should be placed closer to the face and nearer together. This may necessitate drilling a smaller diameter hole to avoid too large a charge in one hole, and to make the explosive fill the hole to the proper height. Material for stemming should have the property of absorbing a shock without being blown out of the hole. The best material for this purpose is dry ground shale as it comes from the dry pan, or well tamped sand.

It is a good plan to fire several blast holes at once. More material will be torn down per pound of dynamite, and the cross forces from the different holes will break the shale into smaller pieces.

BLASTING WITH ELECTRICITY

Blasts should be fired by electricity except where single charges are exploded. The ordinary magneto blasting battery with the caps connected in a series is not so satisfactory as a line from the lighting system, to which the caps are connected in parallel. Blasting caps sometimes have bridges of unequal strength. When the caps are connected in series

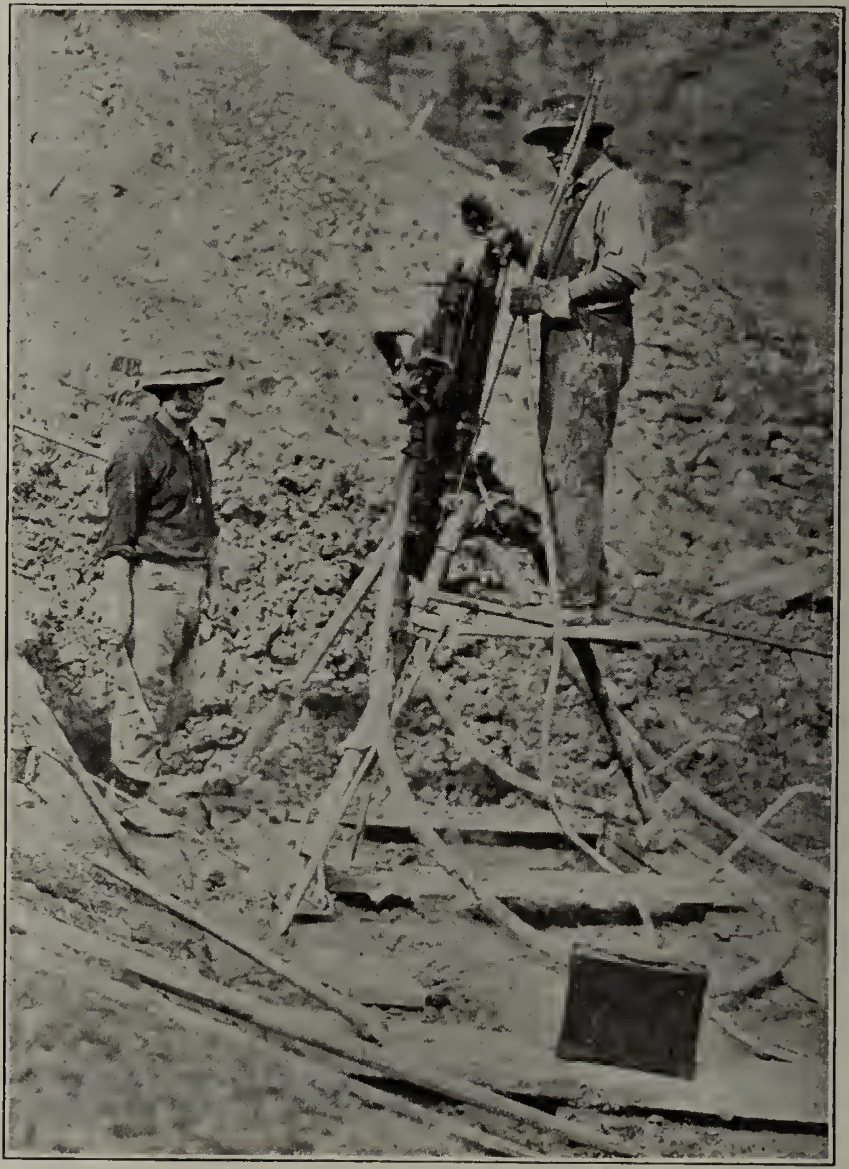


Fig. 3—A Steam or Air Tripod Drill That Is Adaptable to Vertical or Horizontal Holes Up to Four Inches In Diameter

the caps which have the highest resistance in the bridges are apt to explode before the caps with the low resistance bridges get enough electricity to explode them. This is apt to be the cause of mis-fires in part of the holes. We have secured the most satisfactory results by connecting the caps in parallel to an ample supply of electricity from the generator. By this method the mis-fire from unequal resistance in the bridges is entirely eliminated.

I have not been able to determine how much electricity is required to explode a cap. The resistance in a cap is about the same as the resistance in a sixteen candle-power carbon filament lamp. The switchboard ammeter scarcely makes a tremor when thirty to fifty caps, connected in parallel, are exploded. The ordinary ammeter is perhaps too sluggish to indicate such an instantaneous flow of current. We have found it ample to fuse the blasting circuit with an allowance of one-half ampere to the cap on 110-volt circuits. To avoid the danger of connecting caps to live wires, the blasting circuit should be equipped with a spring switch which breaks the contact as soon as the handle is released (Fig. 7).

ECONOMIZING ON CAPS AT EXPENSE OF DYNAMITE

Where there are five hundred pounds of dynamite in the hole, which at twelve cents a pound is worth $60 it is a poor plan to economize on blasting caps which cost but a few cents each.

The United States Bureau of Mines, in Bulletin No. 59, states that a No. 6 cap, which contains one grain of mercury fulminate will produce 10.4 per cent. more explosive force in the dynamite than a No. 5 cap, containing three-fourths of a grain of mercury fulminate; and that a No. 8 cap, containing two grains of mercury fulminate, will produce 14.9 per cent. more explosive force in the dynamite than a No. 5 cap. This means a considerable saving in explosive when No. 8 caps are used.

My experience leads me to believe that better detonation in large charges of explosive is secured by the use of a cap near the bottom, one in the middle and one near the top of the charge. Even if the cap tests all right it is much safer to use more than one. Sometimes a wire is broken in tamping the stemming. If two caps have been used, the charge can still be fired. It is an unpleasant situation for the steam shovel operator, when one of the holes mis-fire. A charge of dynamite containing an unexploded cap is a delicate thing to handle with a steam shovel or to grind in a dry pan.

CAPS SHOULD HAVE DIFFERENTLY COLORED WIRES

When two or more caps are used in a hole, there is danger of connecting the two wires from one cap to the same lead wire from the supply of electricity. An easy way to avoid this is to have the caps made with two differently colored wires. That is, one of the wires might have red insulation and the other might have white insulation. In connecting caps to the lead wires, all the red colored wires should be connected to one lead and all the white colored wires to the other. It well worth while to purchase a cap tester and to test each cap both before it is placed in the hole, and again when the connections are made to the lead wires. There are several makes of cap testing galvanometers on the market made for this particular use. When testing with the galvanometer a very small current is passed thru the cap. If the galvanometer is properly constructed, the amount of current is so small that there is no danger of causing an explosion.

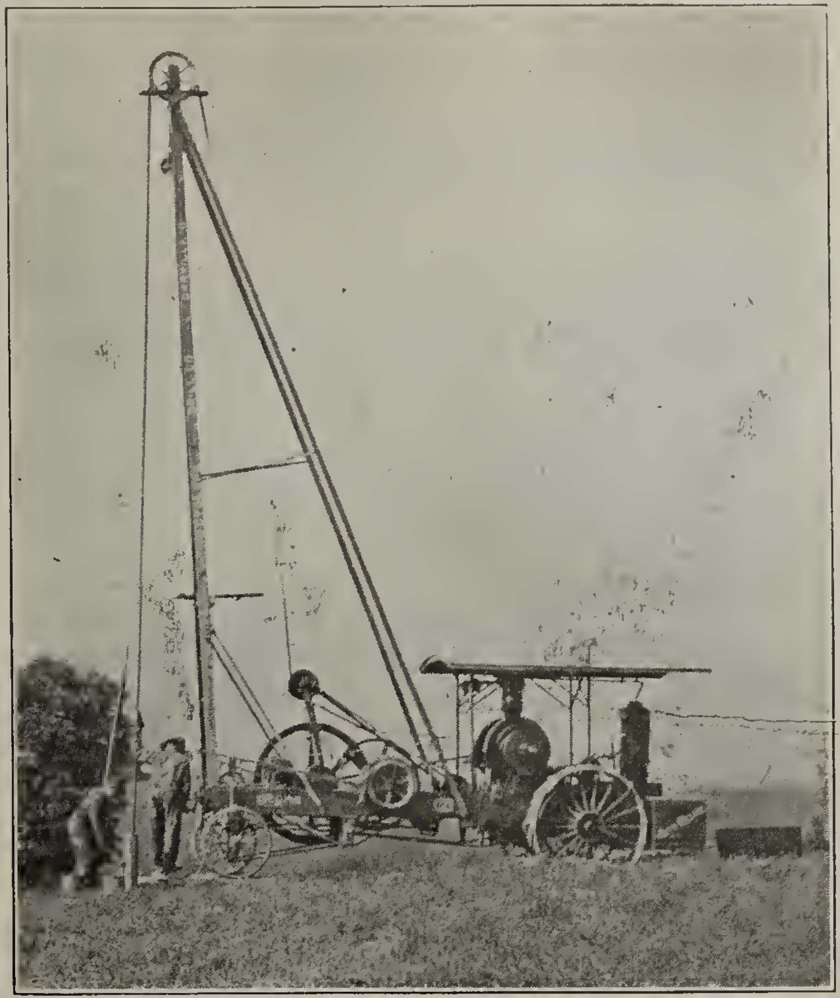


Fig. 4—The Well Hole Type of Drill Has a Decided Advantage Over the Tripod Drill Because It Is a Complete Unit In Itself

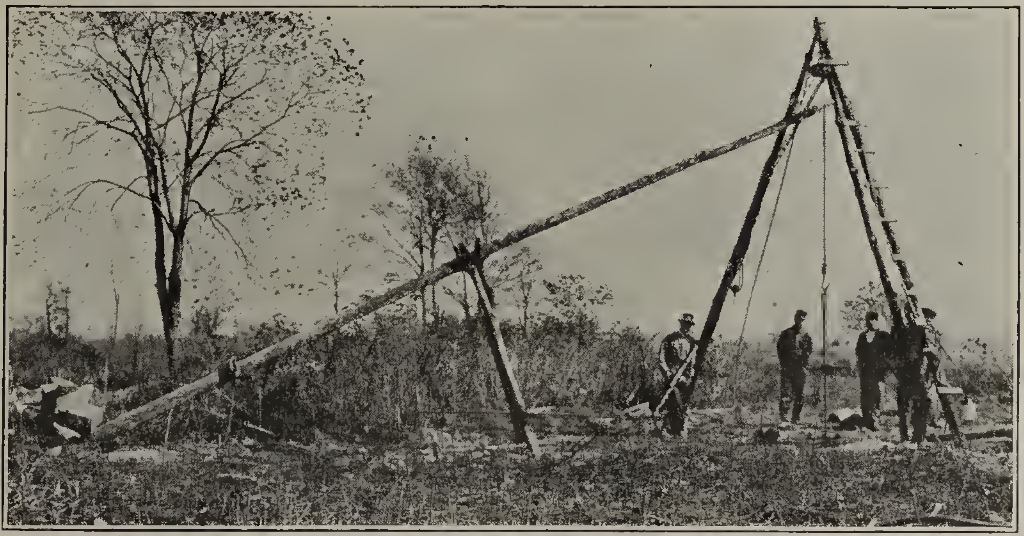


Fig. 5—An Old Type Spring-pole Well Drill

The kind of explosive which is best adapted to a shale bank can only be determined by careful comparative trial. Straight nitro-glycerine dynamite is apt to be too fast for shale.

Ammonia dynamite generally gives better results than straight dynamites, but it deteriorates in water and may give trouble in wet holes.

Potassium chlorate dynamite seems to give good results in shale, but it is not widely used.

Nitro-starch dynamite is non-freezing and does excellent work in shales.

Blasting powder is one of the cheapest explosives but it is, of course, not suitable except in very dry holes, which greatly limits its use.

We have used all five types of explosive and find the nitro starch very satisfactory for big blasting, particularly in cold weather.

The thawing of a ton or two of dynamite is a difficult problem unless a large and expensive thaw house is available.

There are two reasons why big blasting and large blast holes are more efficient. The principal reason, of course, is that large amounts of explosive properly loaded and fired will bring down more tons of shale than if fired in several small blasts. The second reason is that the money involved in big blasting justifies the attention of men of a higher grade of intelligence and ability than is ordinarily found in the pit "boss" who daily drills a hole and with a few sticks of dynamite blows down enough shale for the next day.

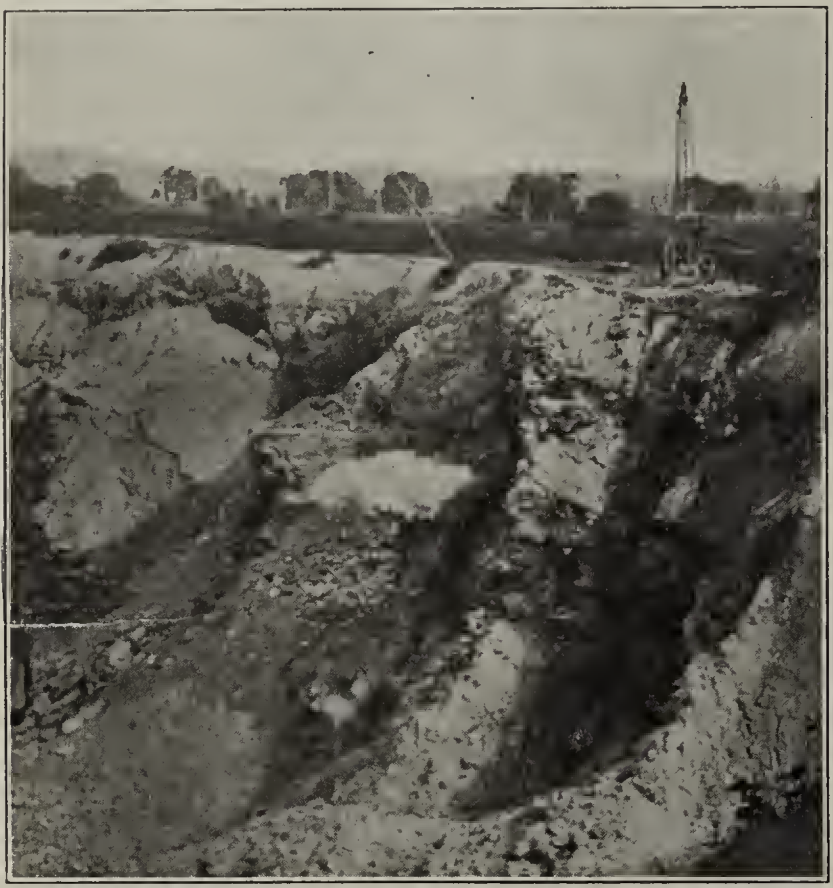


Fig. 6—A Shale Bank in the Process of Being "Shot." Note the Well Drill on the Top of the Bank

THE DISCUSSION THAT FOLLOWED THE READING OF MR. HUMPHREY'S PAPER

Mr. Blair: This paper is of interest to me. I have had some little connection with, and experience in dynamiting shale, using nearly a ton of dynamite a month for that purpose. I would like to add a drill driven by a gasoline engine to those Mr. Humphrey enumerated which has a horizontal screwfeed, thread bar drill, with power applied to the drills. A gasoline engine furnishes the power in places and on plants which are devoid of electrical power or air compressors. The air compressor usually involves a little larger investment than a small plant cares to put into that sort of equipment, and a great many plants, especially in the natural gas region, have never felt the necessity of putting in electrical equipment. They use natural gas very largely for light and hence do not feel the need of electrical equipment. The adaptation of gasoline power to a drill for mine work is very economical, especially where the work is hard to reach, and where the water makes the use of the electric current rather dangerous. I have built a drill for that purpose using that type of power, and it will drill a foot a minute, in an excessively hard shale. Two men operate the drill, and a two-horse gasoline engine drives it. It can drill an inch and three-quarter hole, twelve feet deep, and it is adaptable also to the open shale bank, drilling holes at the bottom of the drift. Inside the mine I am able to reach as much as a twelve by fourteen or fourteen by fourteen face, drilling twelve to fourteen holes in that face, and drilling an open point in the face.

If you will permit me, I will give you a rough sketch of the way that drill works in the mine. Here is the roof, here is the floor; here is the face to be drilled. We have the ordinary coal mine jack thru which a thread bar attaches here to the auger drill. This jack is tightened top and bottom in the mine. Say the vein there is twelve or fourteen feet deep. By a universal joint or two universal joints at this point I connect the thread bar to a shaft which is key-seated and fed forward just as the upright shaft is fed on a key seat in a drill press. The power is applied from a friction clutch to a drive shaft and a sprocket chain. The key-seated shaft feeds thru a sleeve with the key fastened in the sprocket. The power can be thrown on or off by the friction clutch (Fig. 10). A gasoline engine sits back on the end of the truck. By having a series of these sprockets, all driven by the same chain, running over one sprocket, behind one and over the other, you can get as many as three different levels for that feed shaft and by that means can drill a hole at six, eight or ten feet above the floor of the mine. I found that machine very effective and very economical. It was inexpensive to build, I think it cost less than one hundred dollars. Two men can operate it and drill a foot a minute, an inch and three-quarters hole, in what we consider a very hard shale. Now, that is for mine work. For use in the open pit, we simply use the same machine and instead of the mine jack, the lock nut thru which the thread bar is fed, is fastened and braced back to the machine so that the weight of the machine, which is rather heavy, is against the drill; it probably weighs a ton altogether. It has a very heavy wooden frame, but is quite easily moved; if on a track, the machine can be pushed along by one man. The bed of the machine has a swivel base so that you can get any horizontal position you need.

Mr. Richardson: How many revolutions does the drill make?

Mr. Blair: About eighty-five revolutions a minute. The gasoline engine runs about three hundred a minute.

Mr. Hice: Will the state mining department permit the use of a gasoline engine in a mine?

(*Continued on Page* 347)

SAVING POWER *by* PROPER ROUTING *of* MOTOR TRUCKS

To hold the power consumption of motor trucks in operation to a minimum it would ordinarily be supposed that the least mileage between two points would be the most efficient. But is it? Many times poorly paved or unpaved streets may be advantageously missed by a short detour. Usually the drivers, if well acquainted with the city, may be relied upon to take this "longest way round but the cheapest way home."

That this longer route many times is the cheapest has been determined by some tests conducted by the Massachusetts Institute of Technology. According to the partial results of the test now available:

"Roadways in poor condition require from fifty to one hundred per cent. more power to drive a motor vehicle over them. Experiments conducted on asphalt pavements covered with compact snow and ice indicate that they require from fifty to one hundred per cent. more power, and when covered with loose snow, even additional power is required."

This saving in power consumption is applicable to either gasoline or electric trucks, altho possibly not in exactly the same proportion.

Another item of economy not mentioned is the saving thru reduced wear and tear on the truck due to the smoother streets.

Thru realizing the importance of this proper routing to decrease the power consumption, one large company engaged in bulk delivery has a route clerk to specify the line of travel on all deliveries. In this case it is often a choice between several routes. The company believes it pays.—*"Factory"*.

AMONG *the* POTTERIES

Altho the action has been long anticipated by buyers of American pottery, yet no official announcement was made until a few days ago that pottery manufacturers would no no longer add five per cent. to the base of all invoices, including packages, but that ten per cent. would hereafter be added to the base of all bills.

As far back as last January, when buyers knew that all other lines of merchandise were advancing, some by leaps and bounds, they were more than surprised when they went to the pottery show in Pittsburgh, Pa., and visited the factories at East Liverpool, Ohio, Newell, Chester and Wheeling, W. Va., to be advised that old prices were still in effect.

Some of the buyers "bought their heads off," so to speak, in order that they could get all the American pottery possible under the old prices, for they knew that sooner or later advances would be announced. It was not until March that any change in the selling lists took place, and then it was that the manufacturers—some of them—advanced five per cent. by adding this to the base of all invoices. Even at that time many buyers held that a ten per cent. advance should have been made, and the incident closed for the year at least.

Still the buyers placed large orders under the new terms, for they realized that something more would come, and in this belief they were not disappointed. In the meantime, some of the manufacturers changed their entire list to agree with the increased costs of labor and raw material, and some of their dinner patterns were advanced as much as thirty-three and one-third per cent. These manufacturers did not add five per cent. to the base of invoices. Those who did not change their entire list added five per cent. to their invoices.

In the meantime the manufacturers of packages sent the pottery manufacturers a new scale of prices, and raw materials continued to advance. These advances became so numerous that further individual action was necessary, and the manufacturers have now announced that ten per cent. will be hereafter added to the base of all invoices, including packages, and with no guarantee that no further increase will be made. Telegrams were sent buyers in many instances, and these wires were followed by personal letters and printed notices concerning the advance.

So heavy is the buying of American pottery now that many manufacturers in the Central West have notified their trade that if they expect any kind of delivery service on holiday requirements, all specifications should be in the hands of the manufacturers not later than August 15. This is most unusual with American potters, who, in past years, have accepted holiday business at late as October.

TO USE EUROPEAN METHODS IN DECORATING WARE

The decorating of American pottery after methods employed in the plants of Germany and Austria is to be undertaken on an extensive scale by E. V. Hauptmann of 2034 Dayton avenue, Chicago. A company with ample capital is about to be formed for this purpose, which will be headed by Mr. Hauptmann, who learned the business by working in many of the largest potteries and glass factories in those two war-stricken countries. It is the opinion of Mr. Hauptmann that the same high grade of decorations can be produced in this country as abroad, and for which an extensive market prevails here. It is also his opinion that it will take from one to two years for the German and Austrian potteries and glass factories to get on their feet after the close of the war, and that it is possible that some of them will never get back to their former basis. Should a new tariff on imported pottery and china be established as is contemplated, there is bound to be an exceptionally heavy demand for a high class decorated line of American dinnerware and specialties.

SANITARY CONFERENCE MAY BE HELD THIS MONTH

No time and place has as yet been announced for the biennial wage conference between committees representing the National Brotherhood of Operative Potters and the Sanitary Potters' Association. It is possible, however, that this gathering will be held this month, and that some seaside resort will be the meeting place. The wage scale that will be adopted at this conference will continue for two years, ending October 1, 1918. It is barely possible that some change may be made in the scale of the general ware trade, as the manufacturers' and workers' representatives have held meetings at East Liverpool with this end in view. At the latter meeting certain conditions were discussed, but up to this time no official statement has been given out as to what was accomplished.

That the jiggermen will be given a slight increase is generally admitted, also some of the warehouse girls. The kilnmen continue to work under an agreement recently entered into, that of payment by the cubic foot of kiln space.

KILN CAPACITY IS BEING RAPIDLY INCREASED

The kiln capacity of the country is being worked to the limit. Seven kilns have been placed in operation by the Carr China Company, at Grafton, W. Va., which have been idle during the fore part of the year. Two kilns have been added to the plant of the Albright China Company at Carrollton, Ohio, and a larger kiln erected at the plant of the Colonial Pottery Company's plant at East Liverpool, Ohio. Several kilns have also been added to the plants in the Sebring (Ohio) district. But against this record of additional production, is the non-operation of the six-kiln plant of the Ohio China Company at East Palestine, Ohio.

It is also pointed out that with shortage of labor the potters have not been able to work more than from seventy-five to eighty per cent. of their capacity. Other causes have appeared to lessen the production, such as gas shortage and unauthorized strikes of certain branches of the industry. These incidents go to show that while the manufacturers have a heavy volume of business on file, they have not been able to ship the normal capacity of their factories. Should conditions remain normal thruout the balance of the year, the record of shipments will undoubtedly show an increase over the first six months period. The merchandise is wanted and the orders are at hand, but conditions have not been favorable to capacity production in any one pottery in the western territory so far this season.

CARR CHINA COMPANY STARTS OPERATIONS

The making of ware started within the past month at the plant of Carr China Company, Grafton, W. Va., of which Thomas Carr of Wheeling, W. Va., is president and general manager. This property was bought in a trustee-in-bankruptcy sale by the Carr China Company, as it was the property formerly operated by the Consolidated Manufacturers Company, whose existence in the pottery world was of brief duration. On account of the tremendous demand for domestic pottery at this time, the new concern will have all the business it can conveniently handle. Buyers are seeking a market where almost immediate deliveries can be made, and as the new concern will start with initial orders, quick shipments are assured for a time at least.

ACTIVITIES OF THE OPERATIVES

William Croot, Thomas E. Henry and Daniel Green, Jr., delegates to the recent convention of the Brotherhood of Operative Potters, held at Atlantic City, N. J., made their report to the members of the Kilnmen's Union of Perth Amboy, N. J., at the July session. The report was voted as satisfactory. At this meeting a special election was held for a recording secretary. Mr. Green was elected for the office.

Trenton, Perth Amboy, nor any of the other pottery centers in New Jersey are to be the scene of the next convention of the Brotherhood of Operative Potters, according to the desire of the local at Clarksburg, Va., and similar organizations in other municipalities. The recent convention held at Atlantic City was not in favor of changing the meeting place from that point, a resolution to the contrary being tabled by a large vote. It was suggested by some that a referendum be taken in the matter during October by all of the locals in the United States and in Canada.

The New Jersey state convention of porcelain workers will be held during the latter part of August at Orange. The Sanitary Pottery Workers' Union of Trenton, at a recent meeting, elected delegates to this meeting. This will be the first time that this local has had a representation at the convention. Members of the Electrical Porcelain Workers' Union of Trenton, will also be represented at the convention. At a recent meeting this body named delegates. Installation of officers was also held.

Efforts will be made at the federation meeting to be held in Orange, N. J., during the last week of this month, to bring about the consolidation of the National Brotherhood of Operative Potters with the Federation of Pottery Workers. It is pointed out that the members of both organizations have finally realized the necessity of acting more in harmony.

JOTTINGS FROM HERE AND THERE.

The shortage of pottery help is admitted to be a rather serious proposition in the upper Ohio Valley. This has caused the Chamber of Commerce of East Liverpool, Ohio, to start on the securing of data upon the shortage of help in each department in every pottery in the district. Then will follow an extensive publicity campaign for pottery workers thruout the country. It has been reported in some quarters that over five hundred pottery workers could be given steady employment in the East Liverpool pottery district alone. Both male and female help is needed.

Pottery and tile manufacturers of Zanesville, Roseville and Crooksville, Ohio, are planning to fight the proposed increase in the price of natural gas for factory purposes that was recently announced by the Ohio Fuel Supply Company. The proposed rate for factories is an advance of twelve and one-half per cent. over present prices. Committees from the manufacturers will appeal to the state public utility commission in an effort to stop the advance, claiming that if the change is made, the use of gas will be made almost prohibitive in the burning of clay products.

The contract has been awarded by the Knowles, Taylor and Knowles Pottery Company of East Liverpool, Ohio, for the construction of four new decorating kilns. The addition has been sorely needed, as the demand for decorated dinnerware at present is the heaviest ever experienced in the history of the American pottery industry. On account of the increased demand for decorated ware, buyers of plain white goods have been unable during the past season to secure sufficient quantities of the latter lines.

Employes of the Cook Pottery of Trenton, N. J., held their annual outing and picnic early last month, which event proved to be an unqualified success. John J. Powers was general chairman of the affair. The reception committee included P. G. Duryea, Robert Rowland, H. P. Humphrey, A. J. Mulheron and A. Comfort. A fine program of games and sports was enjoyed.

The Tennessee Clay Products Company is being organized at Nashville, Tenn., to take over the plant of the old Harley Pottery Company, manufacturing stoneware, firebrick, flower pots, etc. It is proposed to capitalize the new company at $50,000, Robert Dyas, 213 Third avenue, North, being in charge of the organization work.

Contracts have been awarded for the erection of a new office building for the Knowles, Taylor and Knowles Pottery Company, East Liverpool, Ohio, at a cost of over $30,000. The present office room in the main plant will later be converted into warehouse space.

Reports from Trenton, N. J., show that a large number of orders are keeping the pottery plants in Mercer county very busy at the present time. It is expected that there will be no lull in this branch of the industry for some time to come.

* * *

Freight Tariff News from the Capital

The Interstate Commerce Commission, during the past two weeks, has handed down an opinion in case No. 7820 of the Robinson Clay Products Company, Akron, Ohio, against the Akron, Canton and Youngstown Railway Company, et al. In their syllabus in this case the commissioners say:

"Carload shipment of sewer-pipe from Akron, Ohio, to Chicago, Ill., found to have been misrouted. Reparation awarded."

In the complaint in this case, filed with the commission in March, 1915, it was alleged that the defendant carriers misrouted a carload of sewer-pipe shipped from Akron to Chicago, and accrued damages from demurrage and drayage charges were requested.

The commissioners have also handed down an opinion in their investigation into the rates on clay from Florida. In their syllabus in this case they say:

"Proposed increased all-rail and rail-water-and-rail carload rates on clay from Edgar and Okahumpka, Fla., to points in central freight association territory, and certain points in Pennsylvania and West Virginia found justified. Orders of suspension thereof vacated."

The operation of certain schedules contained in tariffs of the Chicago and North Western, and a number of other roads, have also been suspended until February 28, 1917, by the commissioners. These suspended schedules provide for the cancellation of commodity rates on drain-tile, carloads, from Woodland, St. Anne., and Kankakee, and other points in Illinois, to various destinations in Wisconsin and Minnesota, the operation of which was suspended from May 1, and later dates until August 29, by orders previously entered in the same docket.

A suspension has also been ordered, since July 15, until November 12, 1916, in the operation of C. J. Pierce's I. C. C. tariff No. 146. This suspended tariff provides for the cancellation of carload commodity rates on clay and other commodities from points in New England via rail and lake to Duluth, Minn., and other destinations.

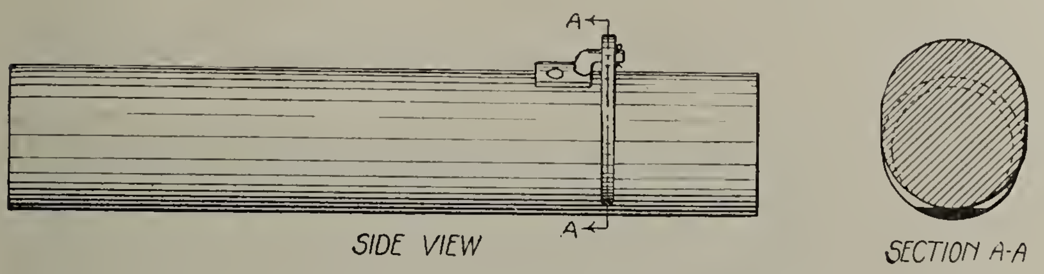
The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Improving the Kiln Door Peep-Hole

It is perfection in the little things about a plant that gives it that smooth running action so much desired by superintendents, but so little attained. It is these short-cuts and conveniences—these little things—that in the aggregate make the management of a clay plant easy and efficient. The man who is really filling his job always has on tap a handy method for doing almost anything. He uses his head more than his hands.

The peep-holes in the kiln doors furnish a good field for ingenious effort. Ofttimes they are made by the simple process of punching a hole with the finger in the soft mud between two of the brick that have been purposely spaced wider apart than the others to permit of this operation. When the heat in the kiln begins to raise and the mud dries out, plugs made of "slivers", or pieces of a brick, or of stiff mud rolled into the proper shape by the hand, are inserted in the peep-holes. But this method needs constant attention. The plug doesn't fit. That part of the door around the holes pushes in, and in general it is a make-shift and a nuisance.



The Gas-pipe Peep-hole That is Convenient and Requires No Attention When Once Placed in the Wicket

There are a number of other methods in use for constructing peep-holes, three of them that have more than usual merit being given here.

The first of these consists in cutting a one-inch hole thru the center of a dry "green" brick and cutting plugs from a broken "green" brick of a size to fit snugly into the hole in the brick. A quantity of these brick and plugs are made, set in the top of a kiln and then burned. This process provides a number of hard burned peep-hole brick and a corresponding number of burned clay plugs to fit, all ready for use when the next kiln wicket is laid up. Then, instead of spacing the brick and poking a hole in the soft mud to form the peep-hole, the door is built with the peep-hole brick laid in the proper place, obviating all of the trouble that accompanies the use of the first mentioned method.

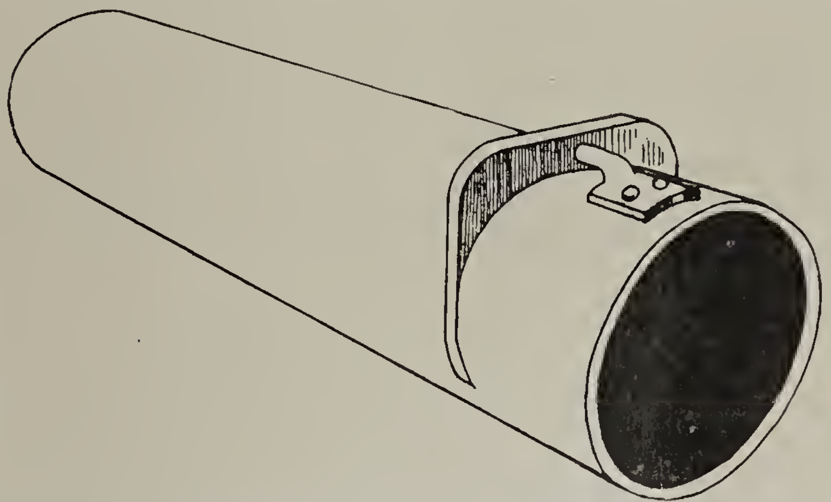
Another method in use on many plants is to leave the usual peep-hole space of about two inches when building up the wicket at both the top and bottom. When the door is plastered over, these holes are mudded up and left this way until after watersmoking. Before the kiln gets hot the mud is removed and a piece of ordinary glass is placed over the holes and mudded tight. This method has the advantage of providing an open view into the kiln at all times without the necessity of handling a hot plug or subjecting the burner to the danger of singeing his eyebrows at the top peep-hole.

However, if the glass is placed in the door before the watersmoking period is completed, it will become smoked up immediately and if it is placed after high heat is on, it becomes very difficult to prevent it from cracking. It is necessary, therefore, to insert the glass in the wicket between the two periods above mentioned.

Mica, or isinglass, is better than ordinary glass for this purpose, if it is handled properly. If it is placed in the door in a condition that will permit of the gases getting between the layers of this material, it becomes clouded and impossible to see thru.

Still another method of constructing peep-holes, which, perhaps, is best of all, is to use a gas pipe long enough for a single or double wicket, as the case may be, that is sawed almost in two at a point that comes outside the door. This leaves a slot in which a shutter may be placed as is shown in the accompanying illustration. This shutter is usually made of thin sheet iron and is turned on a hinge that is provided by bolting a thin round rod similar to that shown in the drawing, on the top of the pipe at the center. The pipe used may be of one or one and one-half inch diameter and must never be pushed so far into the kiln that there is danger of its melting.

In using this type of peep-hole, it is only necessary for the burner to grasp one of the protruding corners of the shutter and raise it, thus clearing the inside of the pipe so that it is possible to look into the kiln. In many cases it has been found advisable to attach a handle to the shutter, this to prevent the operator from burning his fingers when looking into a kiln under high heat.

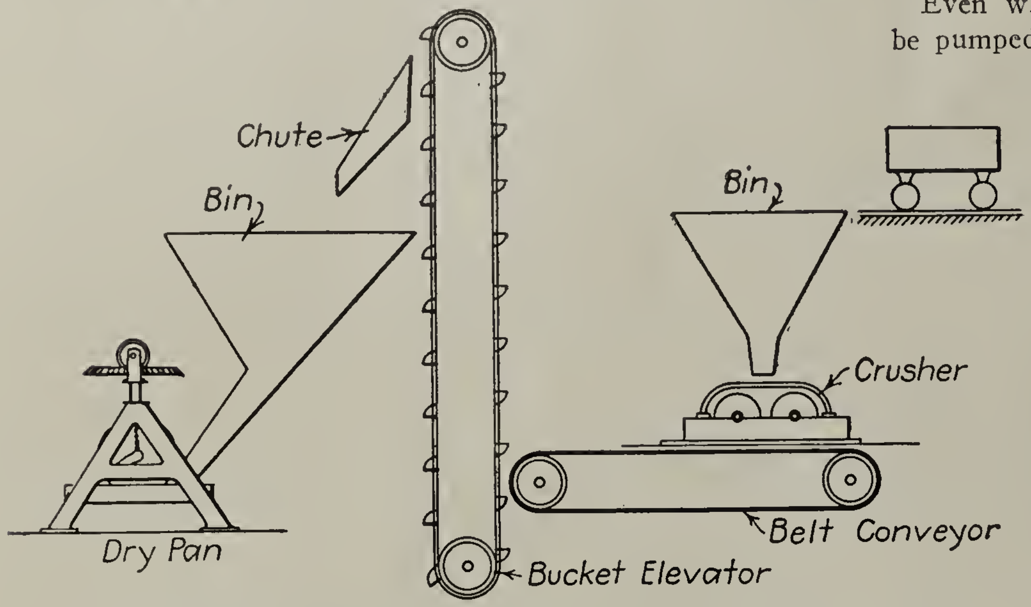


A View in Perspective of the Gas-pipe, Showing How the Shutter Looks When It is in Place

This type of peep-hole not only eliminates all the trouble that is experienced in using the other and cruder methods, but has the additional merit of requiring no attention after it has been installed in the proper place in the wicket.

Saving Labor at the Dry-Pans

An excellent example of efficiency as applied to the preparing and storing of clay is to be seen in the arrangement shown in the accompanying illustrations, which is in use on a large eastern fire-brick plant. Eliminating the man who is usually required at every dry-pan to keep it supplied with material and to break up the larger lumps that the mullers would have difficulty in conquering, this system, altho in use only a few months, already promises to pay for itself in a short time.



A Diagram Showing How Clay Is Handled in a Modern Fire-brick Plant

A large steel bin, having a capacity of three hundred tons of clay—the amount used by the plant in one day's run—has been erected just above the dry-pans and is divided into three compartments. Each of these has a chute that leads from it to the dry-pan that is located beneath. Before entering the large bin the clay is dumped from a car into a receiving bin, which is much smaller than that over the dry-pans and from which it is dropped in convenient quantities to the crusher immediately below, as shown in the accompanying sketch. As the clay leaves this machine it falls upon a conveyor belt that runs directly beneath the crusher and which carries the clay to a bucket elevator. This, in turn, elevates it to a point sufficiently above the top of the bins so that the elevator can discharge it into a chute that distributes the clay to the proper compartment in the large bin, thus keeping the supply of material in each approximately equal.

As material is needed at the pans, a stop, located in the compartment chute at such a height that it is convenient for the one man in charge to operate, is pulled out and the clay runs into the pan over which the chute is hung. In this manner, one man is enabled to attend to a battery of three pans and he is not compelled to break any lumps in the clay or shale since it has previously been put thru the crusher before reaching the pans.

What Comes from Saving Water

Water is generally considered to be cheap because many gallons can be bought for a cent in most cities. From private wells it is more often assumed to be absolutely free.

An engineer upon taking control of a new plant recently demonstrated, tho, that it pays to save water, especially hot water, not only on account of the reduction in amount of water used and the consequently lowered water bill, but also because of added savings.

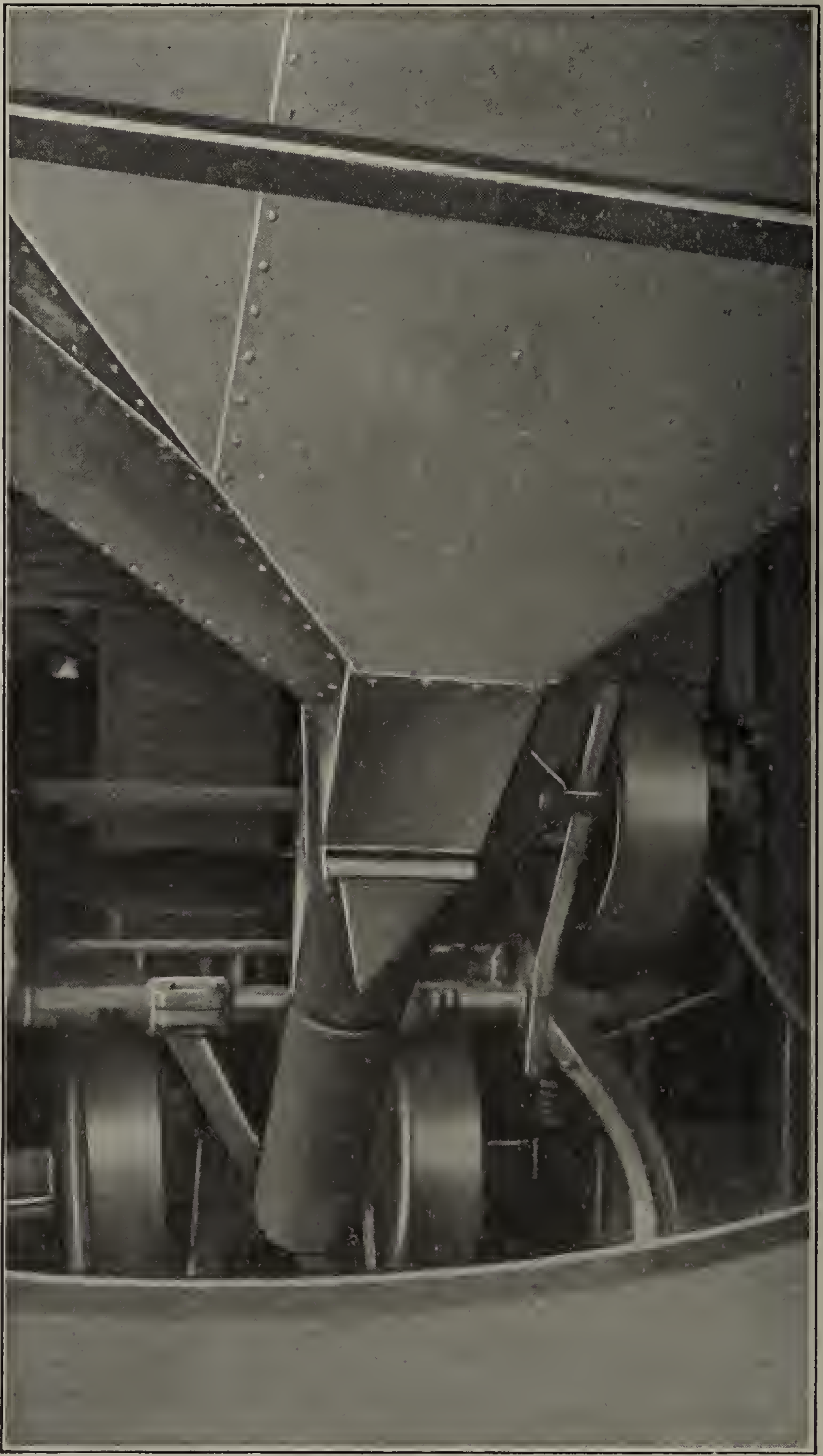
He found that his predecessor had permitted hot return water from engines and the heating system to flow into the sewer because the water contained oil. Oil is bad in boilers, true enough, but this engineer knew how to keep it out. To do this he installed a grease extracting device, saved the hot water and reused it in his boilers.

In this way he not only cut down the fuel consumption five per cent., but the cost outlay for water was reduced fifty per cent.

Even where water is obtained from private wells it must be pumped and pumping invariably costs something, at least. The deeper the well, the more the pumping costs. So, even in case the plant is supplied from its own wells it may still be well to save the water. In any event, it is seldom good business to waste hot water, no matter how low its first cost.—*"Factory."*

A High Grade Fire Clay

It must withstand a temperature of Cone 32 before softening; it must have a chemical composition close to that of kaolin, or in other words, as low in silica as possible, low in iron and titanium oxide, lime, magnesia and the alkalies; it should show gradual vitrification and not become dense at lower temperatures; it should show good standing-up qualities as determined by subjecting a test piece or brick made from the clay in question to a load test at an average furnace temperature. At the laboratories of the Bureau of Standards, Pittsburgh, Pa., these test conditions specify a load of fifty pounds per square inch and a temperature of 1350 deg. C (2462 deg. Fahr.).



A Method of Feeding Dry-Pans That Enables One Man to Tend to a Battery of Three Pans

QUESTIONS *and* ANSWERS

The Best Authorities in Every Clayworking
Branch are Called Into Consultation—Their
Advice is Free to You, Thru These Columns

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held in confidence, and no letters will be forwarded them without first being scrutinized.

Burning Drain-tile in Scove Kilns

788. *Washington—We are burning brick in an old style, up-draft kiln. Could we burn drain-tile above the arches about four courses? The arches are sixteen courses high. We would set the tile from the sixteenth to the twentieth course and then put on six courses of one-foot drain-tile, or we could make low arches and burn a larger number of tile in the kiln. The demand is greater for drain-tile in our section than for brick and we have not the capital to invest in a round, permanent kiln. Therefore, we would like to continue in some way to burn the tile in the scove kiln, using slab wood as fuel.*

We do not know of any plant that is burning drain-tile and brick in the combination above suggested, and so are not in a position to give actual experience in this matter.

It would seem to us that the difficulty would be in holding the heat in the kiln and getting a uniform distribution. If this can be done, your plan looks feasible.

You might try it. Would suggest that the tile be set in the kiln above the eighteenth or twentieth course of brick, or from two to four courses above the arches. As noted above, the big difficulty will be in devising a method of platting for the top of the kiln. Courses of brick should be laid flat on top of the last course of tile. These brick should be alternated in direction—one course set lengthwise with the kiln and the next course set at right angles. We would say that three or four courses should be used in the try-out burn. If it is seen from this that the platting does not keep the top reasonably tight, it may be necessary to cover with fine dirt where hot spots occur.

It is obvious that "hot chimneys" will develop, as little or no resistance will be offered to the free upward passage of the gases thru the round tile. These hot gases must be confined, as outlined.

If the scheme works, reduce the height of the arches and try for a larger capacity of tile in the kiln above the brick arches.

Has Trouble with White Brick Flashing Red

789. *Michigan—I have a bank of clay—almost a shale—that when made into brick or tile burns to a cream white color. In setting the brick in the kiln, where the faces come in contact with each other, the steam from the brick, while water-smoking, seems to put a crimson blush on them which spoils them for face-brick. If I can overcome that fault, I will have a market for every brick I can make at a good price. What do you think about it? I am experimenting with the problem.*

Since the above information was not complete for an intelligent investigation, we wrote our correspondent asking for further data. He replied as follows:

Your letter containing a series of questions was duly received, but as I was burning a kiln and experimenting with some of the white brick, I delayed writing you as I wanted to tell you how the brick turned out. Instead of setting them with the faces across from each other as usual, I laid them down flat two across two and they burned much clearer. Of course, it would not do to set a kiln in this manner as the weight, no doubt, would break a good many brick. But I believe that my theory is right, or partially so, at least, namely, that the steam or dampness causes the blush when the brick are set with their faces together.

Owing to the fact that our correspondent lost our first letter, we sent him a copy of the questions to which we desired an answer before offering a solution to his problem, which letter elicited the following information:

I use a down-draft kiln with four chimneys on it which connect with flues running under the brick floor, the brick of which are set on their edge and are quite close together.

Our ware, which is air-dried, is set dry. We burn our kiln about forty-eight hours with coke, or until the air in the chimneys begins to feel quite dry and the ware in the top of the kiln is red. Then we begin with soft coal and burn until the bottom is at a white heat, holding it there for several hours. The time of burning varies somewhat. It always takes a few hours longer to burn the first kiln in the spring, as the floors and walls are much damper than in the summer. Then, too, a hard, cold rain will sometimes delay a kiln for a few hours.

Usually it takes about four days and five nights to burn the kiln, or, if we begin in the morning, it takes five days and four nights. We determine when the kiln is finished by how the ware looks.

We do not use setting sand. We usually set five courses of tile in the bottom of the kiln and then put brick on the tile. The manner in which we set the kiln depends to a large extent on the amount of brick we wish to burn in one kiln. The brick are usually set three across three which does not make them very tight.

When firing with coke, most of the time the fires have a clean bed of coals with plenty of air passing over the top, but when we fire with coal, the fire-boxes are well filled with fuel about once every hour and for a few minutes after firing a good deal of smoke passes thru the kiln. This diminishes as the heat raises in the kiln, there being very little smoke when white heat is attained.

The reason I think the blush is caused by the dampness in the brick is because it appears right where the brick cross each other in the setting and where the most weight seems to come. Apparently, the brick dry out in these spots last. There is almost never any red coloring on the white brick where they do not touch each other.

Of course, I cannot say positively that this is the cause of the coloring but we have been burning these brick for the

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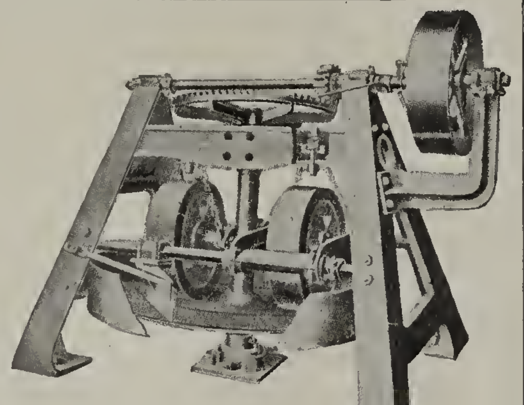

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past forty years or more and the results have been the same whether they were burned in an old fashioned, up-draft kiln with a capacity of 100,000 brick or in a down-draft kiln with 5,000 brick set on the tile.

Now that we have all of the information in hand concerning this correspondent's problem, we feel certain that a solution is to be found in the method of setting. We would refer him to an article under the subject "Setting Down Draft Kilns," by A. F. Greaves-Walker, appearing on page 501 of the October 5, 1915, issue of "Brick and Clay Record." It says in this article with regard to unflashed face-brick setting:

"In spite of the increased demand for flashed colors, there is still a good demand in some sections for brick of a clear color, both in dry-pressed, stiff-mud and soft-mud. To prevent flashing, it is of course necessary to protect the faces and heads. This is accomplished by "facing" the brick and "butting" the heads.

"The well known forms of 'double two on one,' 'double three on one,' and 'double five on two' are used as shown in Plates 7, 8, 9. With care in burning, this type of setting will accomplish the object sought for. It requires, however, the greatest skill, for all brick must be perfectly faced or many "seconds" will result. Care is also necessary, as with all setting, that after the first course is laid down all brick shall be set in perpendicular lines, in order that the fire gases may flow unchecked to the bottom.

"Where burning can be done under continuous oxidizing conditions, as in cases where natural gas, producer gas or oil are used, the 'tight bolt' method can be used with success. With this method only the heads are exposed to the gases under any circumstances, and if these are not flashed, there is the great additional advantage of having two faces to select from, with no chance of 'kiln marks.'

"Protecting the heads exposed above the flash walls is one of the difficulties experienced in setting unflashed face-brick. One of the several methods used is shown on Plate 10."

Owing to a lack of space it is not possible for us to reproduce the illustrations mentioned in the above extract. However, they may be studied by referring to the original article.

Our correspondent's brick must be set so that the faces are entirely and uniformly covered, or they must be entirely exposed. In the first method of setting which he describes, where the faces are set across each other, he probably produces brick in which all have a crimson blush, whereas, in the second setting which he used, where the faces were uniformly exposed, he probably produces all brick with the entire face a "cream white."

Wants to Remove Iron Pyrites From Clay

787. *Philippine Islands—As the white clay I am using in my pottery contains iron pyrites, will you kindly advise me regarding an effective method for separating this undesirable matter from the clay.*

In "Clayworking Problems," which is published by "Brick and Clay Record," on page 95, an answer is given to a correspondent who wishes a description of a method for washing fire-clay to rid it of impurities. In the answer that was given to this question were contained the following paragraphs which might be of assistance in solving your problem:

"Kaolins are washed by beating them to a thin pulp or slip in a pugmill or granulator type of machine, or a blunger; the coarse materials may be eliminated in a sand wheel or sand box; the fine, slow-setting impurities, such as mica, are removed in settling or flotation troughs, and the creamy kaolin slip is collected in settling tanks. After settling, the surplus water is drawn off and the remaining slurry is pumped into filter presses. The filter press cakes are air dried in sheds or artificially dried in some type of drier.

"Some low-grade pottery (including stoneware) clays are simply beaten up and brought into suspension in a blunger, followed by screening. The slip which passes thru the screen is collected in a tank or cistern and kept in suspension by a stirring mechanism (agitator) until it can be pumped to the filter presses. The cakes from the filter press are passed thru a potter's pugmill and the pugged material taken directly to the potter or stored in damp cellars."

Cold Place in Center of Scove Kiln

776. *Oklahoma—I am burning an up-draft kiln and, after three days of settling heat, I discovered that I had a black streak in one of my arches about the center, and about five arches from the end of the kiln. I went on top and found that I had a cold place about ten feet square, as cold as the day the brick were set, and running to the arch. What looked so queer was that the brick on all sides were red hot. I have been trying to get this cold spot hot for two days but have not been able to do so. Could you tell me the cause of this? The brick are settling fine all around this cold place.*

The above question, together with an answer, was published in the June 20 issue of "Brick and Clay Record." It will be seen by reference to that answer that two causes were suggested as being responsible for the cold spot in our correspondent's kiln. They were, first that possibly the difficulty arose from too tight setting, and second, that the setting of wet brick might have had considerable to do with it. However, one of our readers—D. C. Paul of Bridgeville, Pa.—differs with us on these points, stating that he does not believe they were the cause of the cold spot. A recent letter from Mr. Paul, which contains a suggestion that may be of value to our correspondent and other readers who may have this same trouble, is given below:

"In the June 20 issue of 'Brick and Clay Record' there was a question asked by '776. Oklahoma' concerning a cold spot in the center of a scove kiln. Now, I have had considerable experience in that same thing at different times and do not agree with the answer already given. With all respect to the party giving same, I would like to offer my solution to the question.

"The burner has held the heat near the sides of the kiln too long and has not allowed the center part to become heated along with the sides. Then, naturally the sides were ready to settle first. As the side walls gave a little, a crack was opened in the center and at the top of the kiln. This crevice may have become ten inches wide and several feet in length. The opening may have occurred after the kiln was up to the settling heat for a period of twelve hours. As is usual in cases of this kind, after this crevice is once opened, there will be a draft of cold air from the outside of the kiln which will start down thru the center and extend to the arch, caused by the suction of hot air next to the side walls.

"This condition can easily be remedied by going on top of the kiln and filling up the crack with dirt or anything to close it up. I have thrown a bucket of water on the dirt. The water will soon turn to steam and that will change the draft to an upward direction and, as a result, the cold spot in the arch will soon disappear. The opening might be covered with a piece of sheet iron or asbestos which can be bought in pieces measuring about eighteen by twenty-four inches and is easy to handle. However, either the piece of sheet iron or the asbestos should be weighted down. But in either case the top must be made tight to stop the draft from going downward. If the cold spot is discovered soon enough

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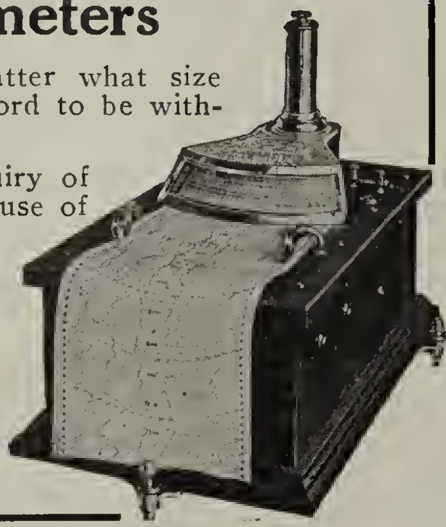

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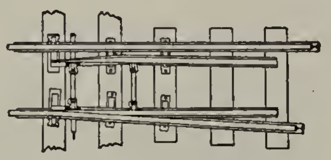

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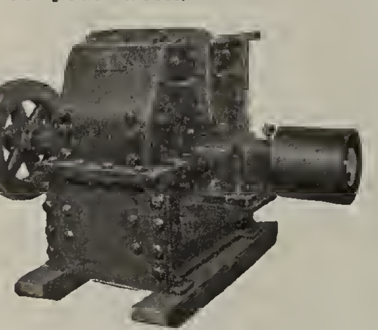

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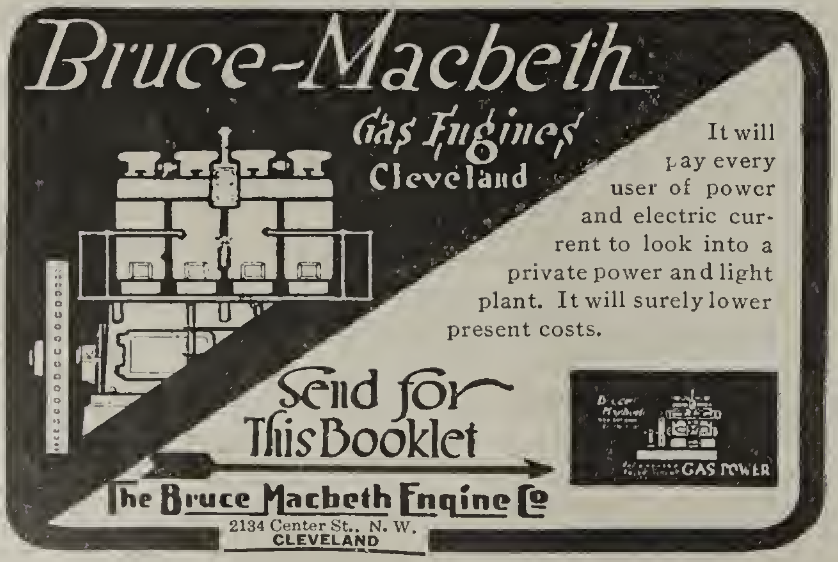

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Still another reader volunteers some information on the above subject. He is Elias Petts of Baltimore, Md., and writes as follows:

"Referring to Question No. 776 in regard to a cold spot on the top of a scove kiln, perhaps I can give your correspondent some information on this subject. I have had considerable experience with cold spots on kilns. I think the spot referred to here may have started from wet brick set in the kiln, thus causing that part of the kiln to fall behind in the watersmoking, and that the kiln heated up all around this place too fast. The doors were probably closed, cutting off the draft from below, before this spot had become heated evenly with the rest of the kiln. This nearly always causes a down draft to set up in the kiln, the draft running down instead of up and often going clear to the arch. This, in my opinion, is what caused the black streak referred to in the arch. When this kiln is emptied, your correspondent will, no doubt, find that this cold spot is funnel-shaped, being the largest at the top of the kiln and running funnel-shaped to the arch.

"If I am right about this—and I think I am—there is only one way to get a place like this hot, and that is to stop the draft from going down by daubing the top of the kiln or by using some other method to close the top perfectly tight, including the cold spot and some distance out on the heated portion of the kiln, until this area gets hot, when the top may again be opened to give draft. If, however, this trouble has gone on until the kiln has been settling three days, I fear that it will be impossible to ever get it hot again, as the extremely hot portion of the kiln has a tendency to draw the air down thru the cold spot, making a half circle, as it were, going down into the cold spot and coming up in the hot portion of the kiln.

"These spots can be avoided by carefully watching the top of the kiln in the heating up process. If a place seems cold, take a torch or light a piece of paper, and then take a brick up in the platting, holding the torch of flaming paper down at the opening. If there is down draft, the flame will be drawn down. If this is discovered when the spot is small, it can usually be stopped by putting an extra course of platting all over the cold spot and some distance on the heated portion of the kiln, breaking all joints and keeping every part of the kiln top as tight as possible and giving as much draft at the bottom of the kiln as is practical.

"It appears that the kiln in question is a scove kiln—your correspondent merely says "up-draft." Whether this is the ordinary wood burning scove kiln or a coal kiln with furnaces attached, I do not know. If a wood kiln, the spot is more easily overcome than if an up-draft furnace kiln. The trouble that I find with most furnace kilns is that they have too little grate surface for the area of the kiln and, unless the kiln top is kept very tight, it is impossible to fill the kiln with sufficient heat to raise the temperature of all parts alike, and this often causes down draft and cold spots.

"I trust that if your correspondent has any more trouble of this sort, he will watch the top of his kiln and see if this is not the cause and, if discovered in the early part of the heating process, which is the time at which the cold spots usually start, it can be remedied as above and soon the kiln will be hot all over and at the same temperature."

Can Soft-mud Brick Be Rough-textured?

790. *Virginia—We would like to know if there is any practical way of making a rough-texture on a soft-mud, sand mold brick. We know there are several ways of doing this*

with the stiff-mud product, but have never heard of any method that could be used with soft-mud.

We have never heard of any method whereby a rough-texture can be produced on a soft-mud brick. If any of our readers can enlighten us on this subject, we would consider it a great favor. Possibly there are some engaged in the manufacture of brick to whose attention such a device has come.

* * *

The LETTER BOX

A Place Wherein Letters That Have General Interest Are Published and Commented Upon

Believes Industry Should Develop Self-respect

Following out the line of thought expressed in our editorial appearing in the August 1 issue under the heading "Medication vs. Surgery," it would seem as tho the grand finale has been played to the discussion on Mr. Fiske's excellent paper entitled "Price Cutting." But there are a few echoes still lingering in the galleries, reminding us of the triumphant conclusion of a well-written composition. These swiftly departing shadows of sound have taken the form of two letters from parties interested in the marketing of face-brick. One of these letters is from J. H. Payne, secretary of the Fraser Brick Company, Dallas, Tex. It is dated August 2 and presents some thoughts that are worthy of careful and serious consideration:

> I have just returned from an extensive trip and find on my desk your letter of June 22 in reference to a paper prepared by Mr. Fiske, which is reproduced in your June 20 issue.
>
> First of all, I wish to say that I feel Mr. Fiske is entirely justified in the vigorous indictment that he has drawn up and unwillingly I have been forced to the conclusion that not only the face-brick business, but the burned clay industry at large, occupies a very low position in the scale of occupations. I quite agree with Mr. Fiske that this demoralization has come about more thru the activities of the price cutting fiend than any other agency.
>
> Unquestionably, the adoption and strict maintenance of a fixed price system would largely correct the present evils, in fact, do away with them practically altogether, provided the fixed price system was accompanied by fixed terms and the necessary standardization, as advocated by Mr. Fiske. *We have got to develop more self-respect; have got to exercise more firmness in our attitude toward all classes of people with whom we do business; have got to run our business absolutely, and when we do this, we will be more highly thought of by "the other fellow."*
>
> More than once, courteously of course, but none the less firmly, I have told architects, contractors and owners that our prices and terms were made by ourselves and not by our customers or competitors, and I can recall no instance whatever in which this policy lost a sale. On the other hand, we can point *with pride* to the fact that our company is accorded a little more respect by the people with whom we do business and by the public at large than is the case with the average brick and clay products concern.
>
> Certainly the lessons of the past should be used as a means of greatly improving conditions of the future and I hope that it will not be long before the plan suggested by Mr. Fiske is in general use.
>
> "When I say that I am an American citizen," said a well-known candidate for president, recently, "I ought

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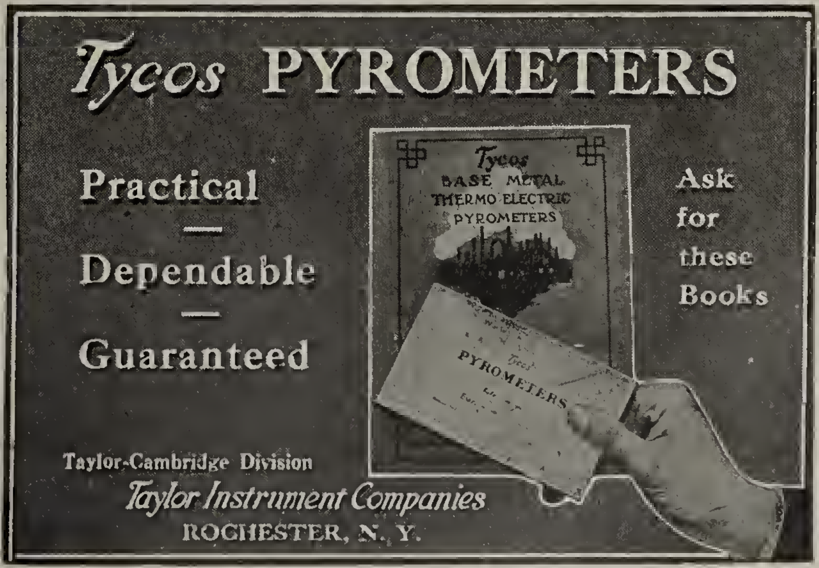

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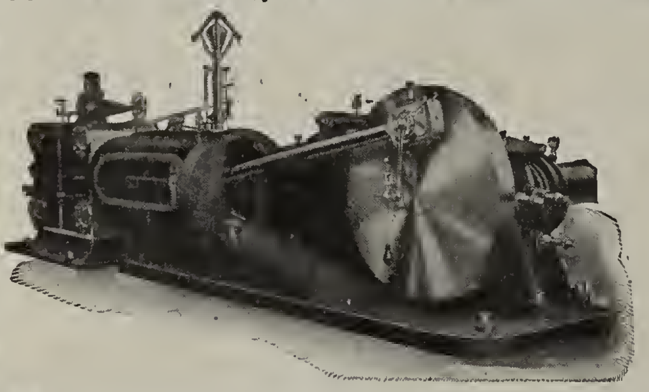

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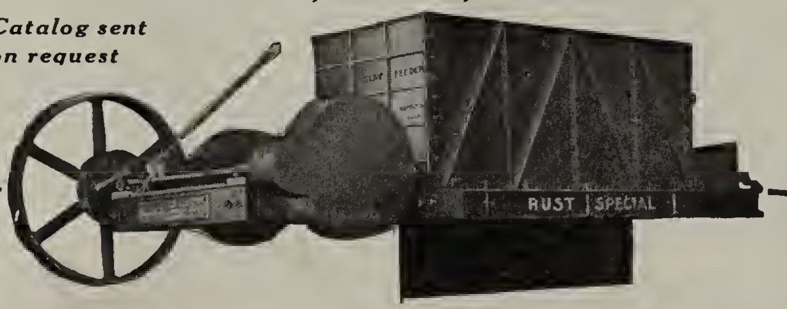

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The same statement applies to the manufacture of burned clay products. We ought to be proud of our calling and not tolerate for one moment any practice that tends to lower its standards. Price cutting is inimical to the self-respect of the industry, therefore, it should be abolished. This argument is in addition to the many already presented, some of which show the folly of a man's persisting in a course that really is robbing him of the best of his profits.

Hits Shipping to Distant Markets at Low Price

The other letter of the two above mentioned, comes from R. W. Besley, manager of the Hydraulic-Press Brick Company's office at Omaha, Neb. Mr. Besley goes gunning after a practice that has been made the basis of a great many complaints on the part of face-brick manufacturers in the past, namely the employment of distant markets as a dumping ground. Writing under date of July 24 to the American Face Brick Association, Pittsburgh, Pa., Mr. Besley says:

> I read with considerable interest the paper of Mr. Fiske and quite agree with him, as well as other brick manufacturers thruout the country, that the brick business is in a serious condition and that a drastic remedy must be found, and found quickly. In my judgment at least a partial remedy might be found in the following:
>
> The manufacturer in the adjoining state should not invade the territory of his competitor with a price based on a yard price that is below what he would sell it for in his own territory.
>
> There is not a manufacturer in the business who could not or would not get a good yard price for his product in his own territory if it were not for the other fellow making him meet certain prices, which prices are based on a "less than cost price" at the yard plus freight to destination.
>
> If manufacturing costs are correct no one should really be in a position to sell quite as cheaply in anyone's territory as that man himself, and if some manufacturers would discontinue using their competitors' territory for a dumping ground, business could be placed on a good sound footing.
>
> Nothing would bother my sales at a fair margin of profit in this territory if it were not for the fact that some competitor, shipping his material from a far distant point, cuts the price and forces me to sell at a lower figure.
>
> And another thing I think the manufacturers will eventually find and that is that they must get the sale of their products in the hands of manufacturers only. There are a few dealers in the country who have the interests of the manufacturers at heart and who follow the "game" with just as much care and business judgment as the manufacturer himself, but they are few and far between and too few to be given consideration as a body.
>
> If every manufacturer would realize that it is not his competitor but he himself who is to blame for the situation, the quicker it would be righted.
>
> I believe the open price proposition would aid the situation, but nobody cares what the other fellow sells his product for, as long as he is making a good margin of profit and permitting his competitor to do the same.
>
> Most any manufacturer would rather sell five million brick at a net profit of so many dollars than to sell twice the volume and not show any greater margin of profit, and if the manufacturers will set aside their desire to invade a far away territory and use that territory for a dumping ground it will be of great assistance in putting the brick business on its feet.

While manufacturers of nearly every commodity thruout the entire country are viewing with alarm the possibility of European countries using America as a dumping ground, following the war, it should not be forgotten that we have a similar condition already existing in a great many domestic markets, including those to which the clay products manufacturer looks for the disposal of his wares. It might be well for those who are crying the loudest for protection against unfair competition to look into conditions in their own business and see if they are not guilty of the very practice against which they desire the industries of America to be protected. We believe that European nations should be prevented from making the United States a dumping ground, but we believe that the foundation of business ethics should be laid at home.

Sets Good Example in Brick Advertising

Many of our readers will, no doubt, remember the interesting account of "How a Dealer Stormed a Lumber-built City With Strong Brick Advertising," which appeared in the July 18 issue, wherein it was proved that the right kind of publicity pays well, especially in the face of sharp competition from materials at a lower price. Omitting the first paragraph of a letter from E. P. Elzey of Parkersburg, W. Va., who was the author of the advertising campaign above referred to, because it is irrelevant to the subject under discussion, and beginning with the second paragraph, we quote below some additional thoughts on brick advertising that merit a careful reading:

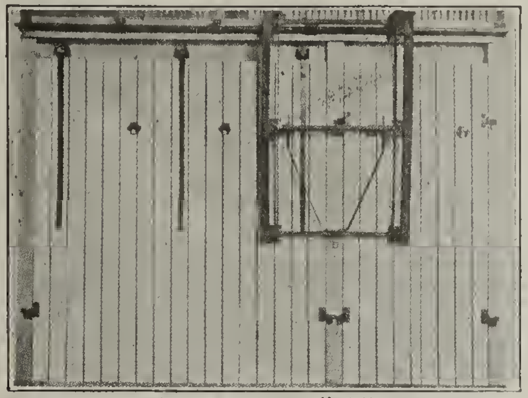
> Naturally, we appreciate the kind expressions of the article and at the same time trust that our example will be followed by other brick dealers. We believe that some money spent in this way will do much to put the face-brick business where it belongs in the building world.
>
> Surely we have the best material on earth with which to build and why any dealer or manufacturer in face-brick hesitates to set forth the merits, beauty and permanence of his material in good advertising is beyond our comprehension.
>
> We believe that manufacturers and dealers generally have come to realize that more must be done in this direction and we are certain that when the ball starts rolling, things will come good and fast to the credit and benefit of the manufacturer, dealer and builder.

Very little need be added to the above letter. It is the simple profession of faith of a man who firmly believes in the efficacy of a business-getter that has no equal if judiciously handled.

⁂

First Seven Months' Building Shows Huge Increase

According to statistics recently compiled, building contracts in the Atlantic and Central states have shown an increase of $202,771,646 for the period from January 1 to August 1, 1916. Contracts awarded for engineering and building operations in the states of New York, Illinois, Ohio, West Virginia, Pennsylvania, New Jersey, Maryland, Virginia, Delaware, District of Columbia, Indiana, Iowa, Wisconsin, Minnesota, Michigan, North Dakota, South Dakota and portions of Kansas and Missouri aggregate $711,005,246, according to the report. For the same period in 1915 the contracts awarded reached a figure of $508,233,600. In New York and part of New Jersey, the total to August 1, was $104,137,500 as against $87,661,000 for the corresponding period last year. The part of New Jersey referred to is generally called the metropolitan zone.



Keep the Heat in Your Drier

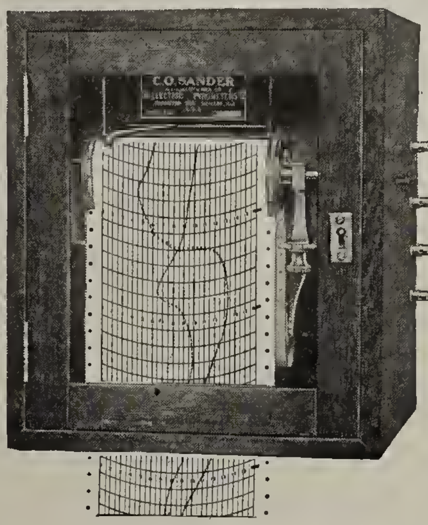
Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

Perfected Dry Kiln Door Carrier

Will handle doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.
Write for catalog B2 and all details.
Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.



Do You Guess

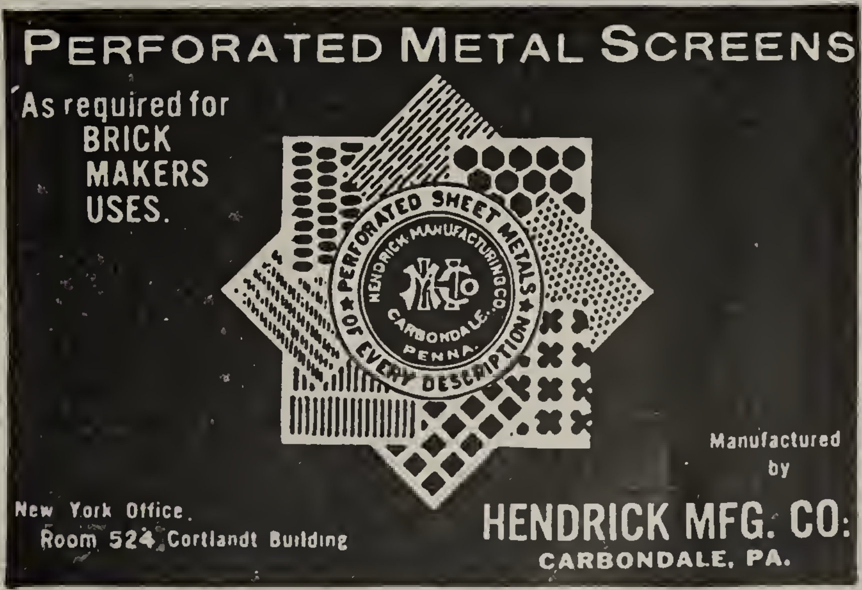
at the time of day, or—glance at your watch? Of course you use the old reliable timepiece? Yet it is infinitely more difficult to guess temperatures than time. The Sander is a reliable pyrometer, it eliminates the necessity for guessing at heats. Investigate.

The Sander Instrument Co.
136 19th Ave., Irvington, N. J.

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois


Perforated Sheet Metals of Every Description
Hendrick Manufacturing Co. Carbondale, Penna.

PERFORATED METAL SCREENS

As required for
BRICK
MAKERS
USES.

New York Office.
Room 524 Cortlandt Building

Manufactured
by
HENDRICK MFG. CO.
CARBONDALE, PA.

Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the

Baird

Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

Fifteen minutes devoted to reading each day makes a total of 91 hours in a year.

Think of the knowledge you can gain if you give this time to the reading of books worth while that help you to greater progress in your work.

Why not refer to page 228 of this issue and select those books that you must know will be a help to you?

Better to do it now than later to wish you had.

The Semi-Monthly Trade Review

BUILDING thruout the country is still continuing the record-breaking pace that has stamped the first six months of 1916 as being without precedent in the value of construction work since 1909. The momentum gained by the new building projected during the first half of the year is still serving to keep the figures well above those of corresponding periods in past years, altho a gradual recession has set in during the past month.

In spite of the fact that the fortnight just concluded has left memories of extremely hot weather (which seems destined to continue), this factor has not interfered to any great extent with national building activity. In some cases, it has really proved a stimulant.

TREMENDOUS GAIN FOR FIRST SIX MONTHS

Upon reference to the record of building during the first six months of the year, the exact figures show that permits issued in 164 cities have a total value of $522,300,000. Only in one instance has this total been exceeded in the past, and that was in 1909 when it reached the enormous sum of $525,000,000. It is thought that the cause for so much construction work during the first half of the year has been due to the demand for floor space, storage room and factory facilities to take care of the huge business in war munitions and supplies sent to Europe.

Another factor that has been very effective in stimulating business in building materials is the railroad strike, a threatening calamity that bids fair to stop the wheels of national prosperity. Heavy orders are being placed to avoid the delay that would necessarily be experienced in the shipment of materials should the strike actually take place. The fact also that the railroad tie-up would be followed by almost prohibitive prices for brick and other clay products had considerable to do with the large temporary increase in business.

NEW YORK EXPERIENCES ARTIFICIAL BOOM

This factor made itself felt in New York City where the people have had a taste of what a transportation strike means in the almost complete tie-up of their street car system. This, according to local authorities, led the dealers who believe in preparedness to lay in large stocks so as to have enough material on hand should there be any trouble with the railroad employes. While this heavy buying does not necessarily mean immediate operations, it does signify that there was an unusual demand made upon the manufacturers of clay products supplying the New York market with materials.

An unusually large volume of plan filings made during July in New York also indicates an active period ahead for the building trade in that city. While these projects may not all develop into contracts immediately, yet they represent the purpose for which the sites will eventually be used. There is, however, great hope that the majority of them will be under way within the next twelve months and, should this prove to be the case it will mean a tremendous demand for building commodities. Especially important in that metropolis is the erection of a number of high-priced apartment buildings, plans for one to cost $800,000 being recently filed. This improvement will be made at the sacrifice of six comparatively modern five-story buildings erected less than fifteen years ago at a cost of about $20,000 each. Housewrecking to make room for new structures is proving the solution of New York's expansion problem. Another important plan filing is that for a million-dollar hotel to be built on the site of the Tiffany Studios near the Grand Central station, this being the twentieth hotel for which plans have been filed since January 1. The prices for brick in New York continue firm and the demand brisk. Quotations run from $7.00 to $7.50 for new common-brick while second hand brick, in great demand, are bringing $6.75 to $7.00 a load of 1,500 at the building.

BOSTON EXCEEDS RECORD OF SIXTEEN YEARS

At Boston, Mass., adverse weather conditions have had no effect upon building which has been greater in the first six months of this year than in any corresponding period in the past sixteen years. Pennsylvania reports a good volume of operations as a whole, but Philadelphia, its metropolis, is still having trouble with a scarcity of labor and with strikes which, coupled with bad weather, are causing a slump in the building reports. Many operations, however, are said to be contemplated.

HOME BUILDING PREDOMINATES IN LOUISVILLE

Most of the current brick business in Louisville, Ky., at this time is made up of small orders, principally for residential construction. While these smaller jobs have kept things moving fairly well, yet they are not satisfactory. As a result, brick manufacturers and dealers are looking forward to the development of some of the larger jobs that have been in the budding stage for some time, to the point where they will become orders for brick. The out-in-the-state demand is very active, numerous orders being received from this source. Common-brick really is enjoying a bigger movement thru this market than around Louisville. An admirable feature of this business is that the cars when delivered do not have to be unloaded as in the city, that job being left to the party receiving the shipment. This leaves a much larger margin of profit for the shippers. A very serious drop has been recorded in the value of permits issued during July at the above point, when compared to the value of permits issued in July, 1915, the figures being $185,000 and $600,000, respectively. However, this is accounted for by the fact that two very important permits were issued last year. Therefore, the figures for July of this year are not to be taken as indicating a slump for Louisville, which a year ago was one of the few cities that reported an increase in building.

NO LET-UP IN PRESSURE OF ORDERS AT DETROIT

Detroit building has not in the least been affected by the intense heat of the past few weeks. The demand for common-brick and other grades has really increased.

HARD digging? Yes—but what's a great deal *more* important, this picture shows *thorough* digging being done. This particular "Marion" is at the plant of The Fredonia Brick Co., Fredonia, Kansas, but you can find its splendid performance duplicated in practically every section of the country—for

The "MARION" is the CLAYWORKER'S SHOVEL

and whenever owners of brick-plants begin to get down to brass tacks on the question of their operating costs, and the efficiency of their plants, you'll generally find them inquiring about the right sized "Marion" to do the work.

Our special Brick-Makers' Book is full of sound, interesting *facts.* Glad to send yours if you request Catalog A120, addressing

Marion

We Make Excavating Machinery of Every Description

Branches:
Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY

Established 1884 MARION, OHIO

119

WANTED

5000 Brick and Tile Manufacturers

Who are willing to be shown how to save time, labor and fuel (some makers say 50 per cent) by using **Hooks Improved Up and Down Draft Kiln.** We also have a **"Grateless Furnace Dry Kiln"** that is cheap and economical to built and operate.

Fire Brick and Kiln Iron at the very lowest price. Just fill out, detach and mail this—

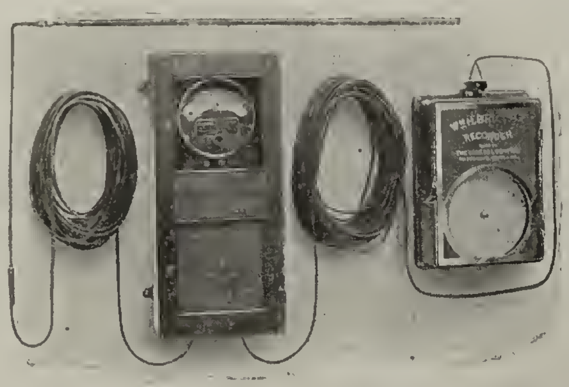
------------ COUPON ------------

OHIO KILN CO., VIGO, O.
Without obligation or expense
"Show Me."

Name ....

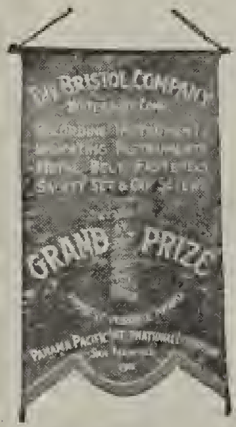
Town ....

State ....



Bristol's Pyrometer Installation

For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.



Write for Bulletin 205

THE BRISTOL CO.
WATERBURY, CONN.

BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Paving Contractors

who use Lehigh Cement for base, filler and grout on all brick paving work

Know Exactly What the Results Will Be

They know that a given proportion will give uniform results in every part of the work and that there need be no guessing as to strength, or uniformity or fineness. Prompt deliveries always.

LEHIGH CEMENT

Cement Grout for Permanence

There does not seem to be any let-up in the city's prosperity and, as a result, brick manufacturers and dealers are exceedingly optimistic regarding conditions for the remaining six months.

Cleveland (Ohio) building is still active as is also that of Cincinnati and Columbus. Records for the last-mentioned place show an increase of $60,000 in the value of July permits this year over those of July, 1915, while since the first of the year there has been an increase of 257 in the number of permits and $1,743,075 in value over the same period of last year.

CHICAGO BUILDING WELL ABOVE NORMAL

New building and heavy construction in Chicago continue in greater volume than at any time during the past year. Progress in erection is fairly well maintained altho much trouble is being experienced from the torrid heat and in getting supplies from brick yards, which are under considerable pressure filling a large number of orders.

PACIFIC COAST BUILING PROSPECTS HOPEFUL

The condition of building in California is very hopeful. The longshoresmen's strike has been called off and the men are back at work. There are still several small strikes thruout the state that are having a bad effect upon the progress of construction work, but on the whole conditions are good. The value of permits in all of the coast cities shows a general falling off, due to the longshoresmen's strike. San Francisco permits for July aggregated $1,497,279, which is a little less than a year ago, and a half million dollars short of the same period in 1914. Los Angeles permits also showed a slight falling off when compared to the same period in 1915, while San Diego building shows a slight increase over last year but is far short of the record of two years ago. The demand for common-brick in the state is exceptionally good, but the face-brick market is temporarily slack, this being also true of terra cotta. Paving-brick and vitrified sewer-pipe show great activity, with fire-brick enjoying a heavy demand.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

Personal

"Jim" Ford, manager of the Fort Wayne (Ind.) Brick and Tile Company, has been confined to his home for the past few weeks because of an infected jaw.

R. O. Costler, formerly western salesmanager for the Hay Walker Brick Company, Pittsburgh, Pa., has resigned that position to become salesmanager for the Darlington (Pa.) Brick and Mining Company.

J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio, left early in August on a business trip, which will include visits to Cleveland, Chicago, Milwaukee, Minneapolis, St. Paul and Duluth. Mr. Adams will study market conditions in the Northwest.

A tragic accident occurred recently at the plant of the Mars (Ohio) Brick and Tile Company, owned by Christ

Gelbauch. While shooting down the face of the shale bank, Dwight Gelbauch, son of the proprietor, who until the time of the accident, managed the plant, fired an unusually heavy charge and was struck with a rock thrown by the explosion and died in a short time. Mr. Gelbauch was standing at what seemed to be a safe distance from the charged section of the bank, but the force of the discharge threw out a large rock which split in mid-air, one of the pieces hitting him in the back of the head. Due to this sad occurrence, the father is planning to dispose of the plant.

Arkansas

The Arkansas Brick and Tile Company is the name of a new concern incorporated at Little Rock, Ark., with a capital stock of $300,000. The company will purchase two plants, which are to be enlarged and their capacities increased.

California

Up to the present time the Simons Brick Company of Inglewood, Cal., has been unable to run its plant to capacity and keep in its employ a full force of men. However, it is now beginning to operate steadily, producing its full capacity.

The Ione Fire Brick Company is very busy at its plant at Ione, Cal. G. C. Hidecker, formerly president of the company, is no longer connected with the concern, but is at Panama looking after his land interests there.

The twelve-story building which is being erected by John Drumm at Second and Market streets, San Francisco, Cal., will have a facing of smooth brick trimmed with terra cotta. The building will be used principally by the Santa Fe railroad for offices.

It is rumored that stockholders of the Silica Brick Company, San Francisco, Cal., are planning to invest additional capital in that concern and resume manufacturing again on a large scale. The plant has been idle for some time and will require overhauling before it can again be put in operating condition.

The McNear Brick Agency, San Francisco, is having a hard time getting a sufficient number of cars to deliver brick on its contracts. While no new orders of large size have been received in August, as yet, the delays in shipping brick on standing orders, caused by the longshoremen's strike and labor troubles the past month, make the company especially busy just now.

Plans are said to have been made whereby the plants of the Western States Porcelain Company and the Pacific Company at Richmond, Cal., will be consolidated and a large plant built on the site of the former company. The Pacific Company recently acquired the controlling interest in the Western States concern. A grinding plant will be erected in the very near future by the company.

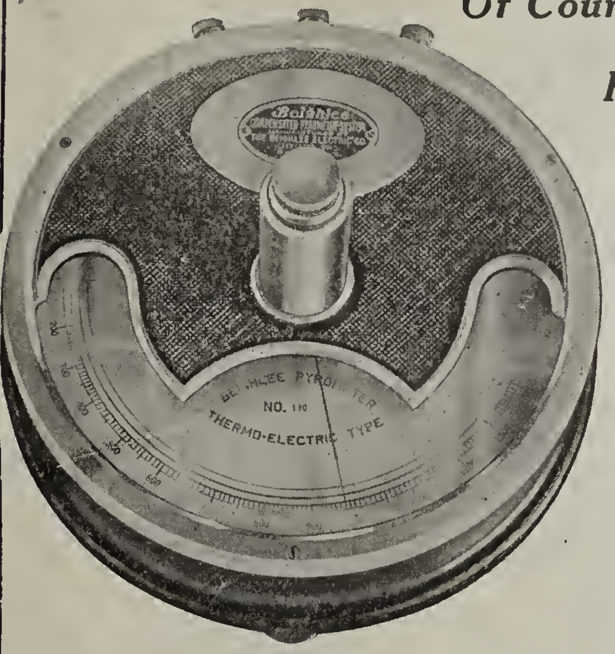
The "Thru-an-Thru" terra cotta, manufactured by the Steiger Terra Cotta and Pottery Company, San Francisco, bids fair to prove a formidable competitor to marble as a facing for high-class structures. The company expects soon to demonstrate on some local buildings of importance the merits of this product as a facing material. It is exceptionally tough and can be used in thin slabs to advantage. The company reports a brisk business in sewer-pipe for the Hawaiian Islands.

The Gladding, McBean Company has been awarded the contract for supplying tile and face-brick for the large

The Installation that Gives Results for Years

BEIGHLEE "THE PYROMETER WITH A CONSCIENCE"

Of Course—There Are REASONS



Good results can only come Consistently from an installation that has an ideal construction for the work required.

For instance—Beighlees are high resistance instruments, they are automatically compensating for cold junction errors, they are furnished with rare metal couples, and they are rugged.

With all of this they are dependable and accurate.

Beighlee instruments are big and impressive—in a distinct class by themselves.

Let us send you the proofs—today.

BEIGHLEE ELECTRIC COMPANY
CLEVELAND, OHIO
HERMAN A. HOLZ, Hudson Terminal Bldg., New York City, Representative in New England States.

POSTERETTES

160,000 of these stamps ave been used by brick-nakers throughout the untry. As many pieces of nail, and express matter, ave carried the "Build with Brick" slogan. It is printed n bright colors and "catches the eye."

How about your using ome of them? It is an in-xpensive way of advertis-ng your material.

Printed in four colors

Gummed and ready to stick on your letters, envelopes and packages.

$1.50 per thousand postpaid

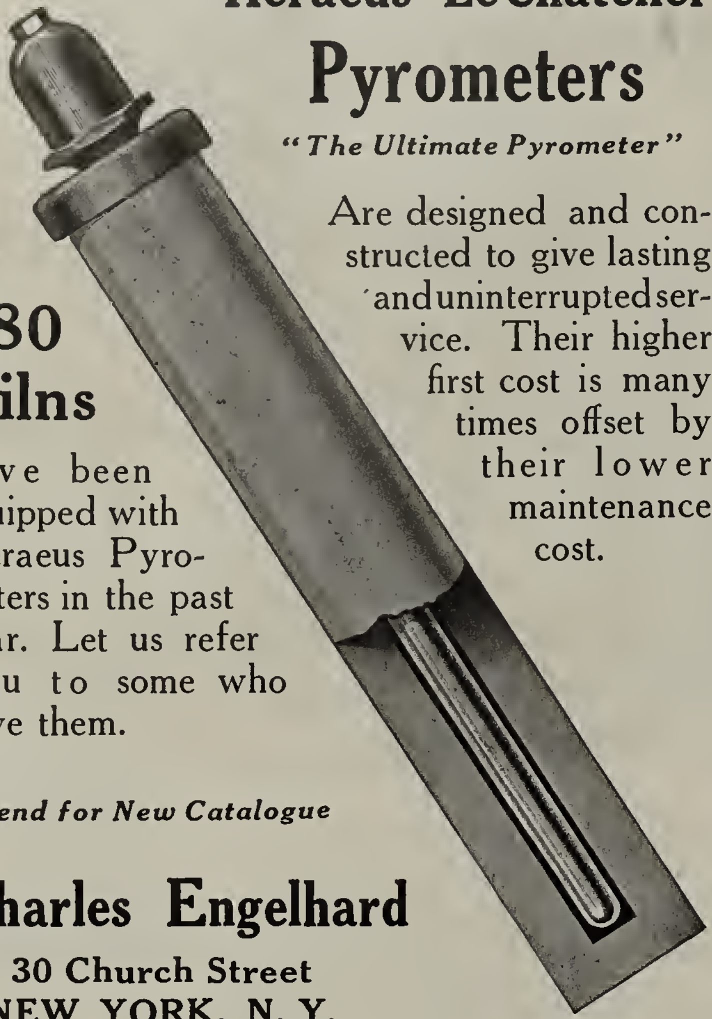
Send your orders to

BRICK AND CLAY RECORD
445 PLYMOUTH COURT CHICAGO

Heraeus LeChatelier

Pyrometers

"The Ultimate Pyrometer"



Are designed and constructed to give lasting and uninterrupted service. Their higher first cost is many times offset by their lower maintenance cost.

180 Kilns have been equipped with Heraeus Pyrometers in the past year. Let us refer you to some who have them.

Send for New Catalogue

Charles Engelhard
30 Church Street
NEW YORK, N. Y.

You can't make us prove the claims we make for

HETTRICK

Red Stitched Canvas Belting

if you don't send us that order you have had in mind for a long time. Don't wait until a belt suddenly goes to pieces necessitating your buying whatever you can lay your hands on, quickly. Order some Hettrick sizes now and have them handy for use the minute you need them. Then you'll be glad instead of sorry and you'll give us a chance to "make good" on our claims. Why not do that today?

The Hettrick Mfg. Co.
Toledo, Ohio

new furniture store of the John Breuner company in Oakland. Interlocking tile is being used for the walls and the exterior is to be faced with brick.

Colorado

A wildflower exhibit was recently conducted at the plant of the Van Briggle Pottery Company of Colorado Springs, Col., under the direction of Professor Lloyd Shaw. A large number of visitors attended the exhibit and, besides viewing the many different types of wild flowers growing in the region of Pike's Peak, were also enlightened concerning the manufacturing of pottery, guides being on hand to conduct them thru the plant and explain the various operations.

Connecticut

The shortage of suitable help for operating the brick yards continues to hamper Connecticut manufacturers and every expedient is being put in operation to secure men. Richard B. Murray of the Murray Brick Company, Berlin, Conn., recently spent a week in Virginia seeking workmen.

Georgia

Application for a charter in behalf of the Stevens Fire Brick Company, to do business in Macon, Ga., was filed recently by W. C. Stevens and W. Stapler, the incorporators. The concern is being formed for the purpose of dealing in fire-brick. It has a capital stock of $5,000, with the privilege of increasing to $250,000.

The plant of the Georgia Red Brick Company, Savannah, Ga., after a period of idleness that has extended over four years, caused by difficulties in manufacturing its product, has been reopened under the name of the Savannah Brick Company. The plant was built in 1911 by George H. and George J. Baldwin, but suspended operations after being run for a year. Recently samples of the clay were sent to I. A. Ryttenburg, president of the Sumter (S. C.) Brick Works, who found that the process in use at his plant produced an excellent product from the Savannah material with no more than the ordinary amount of trouble. Mr. Ryttenburg then came to Savannah as general manager of the Georgia Red Brick plant, making the necessary changes in both the machine room and drier, and also remodeling the kilns slightly. The first burn of 300,000 brick, manufactured after the changes had been made, resulted in ninety-five per cent. being in good condition. A new auditorium is to be built at Savannah shortly, the order for the brick having already been received by the rejuvenated company.

Idaho

D. F. Shope, who has been directing the manufacture of brick for the new Morris building on Main street, Lewiston, Idaho, has left for Portland, Ore., to arrange for shipping additional equipment to Pocatello, Idaho, to be used there for making brick for another large building.

A new kiln is now being built at William F. Sherwood's brick plant at Payette, Idaho, which will greatly increase its capacity. Mr. Sherwood reports a better business for the present year than he has experienced during the fifteen years that he has been manufacturing brick at Payette.

E. J. Shaw of Seattle, Wash., has been visiting the site of the new brick plant that is being built at Moscow, Idaho, to inspect the clay deposits. He pronounced the material as being first class and said the company was warranted in erecting a plant.

With $6,500 worth of machinery contracted for and a superintendent employed, it looks as tho the Moscow (Idaho)

Fire Brick and Clay Products Company will soon be in operation. Several sites are now being considered at that point, to which the clay will be shipped from the company's pits at Joel. It is estimated that at least sixty days will be required to put the plant in operation. Tom Hall, for many years superintendent of the Washington Brick and Lime Company's plant at Spokane, Wash., is to be superintendent. He will look after the construction of the plant and the placing of the machinery.

Illinois

The name of the Crete (Ill.) Clay Products Company has been changed to the Eastern Illinois Clay Company.

Highway commissioners of Deer Park and Utica, Ill., met recently at the Utica bridge over the Illinois river to discuss the petition submitted by the Utica Fire Brick and Clay Company for a tramway to be built across the river at that point. The purpose of the tramway is to carry clay from the pits, across the river, to the plant and eliminate the heavy teaming now needed for that purpose. There is some local dissension as to the advisability of letting the franchise and it was with a view of investigating the situation that the commissioners met. No decisive action was taken.

Indiana

The Evansville (Ind.) Brick Company and the Standard Brick Company of the same city have consolidated and both plants will, in the future, be operated by the same management and under the name of the last-mentioned company. The consolidation was perfected on July 25 when deeds to eighty acres of land were recorded by Henry C. Kleymeyer and others.

Still waiting on the decision of the Pennsylvania railroad as to what it proposes to do with his brick yard on which it holds an option, A. L. Akers, proprietor of the Jeffersonville (Ind.) Brick Company, is negotiating for another location near Jeffersonville about two and a half squares away from the old yard. This would give him a site of twelve or fifteen acres besides three outlets by rail. One line runs past the site on the west, one on the north and an electric line on the east. Whether this new site is taken depends upon the treatment one or another of these lines will give Mr. Akers in connection with shipments into Louisville. The rate from his present plant is excessive and virtually shuts him out of that market, which is just across the Ohio river. Should he be successful in obtaining a satisfactory rate and, as is likely, the Pennsylvania take the old location, Mr. Akers would establish a plant on the new site and engage in manufacturing brick on a large scale. At present he is giving most of his attention to the coal business, which he conducts in connection with the brick plant and is selling out the stock of brick on the ground. The option with the railroad would give it the whole plant and, if the deal is closed, Mr. Akers will be paid for his work in selling the brick.

Iowa

"Business in our line is good and we expect to close one of the best and largest years in the history of our company," writes W. H. Brecht of the Boone (Ia.) Brick, Tile and Paving Company. This company operates one of the few plants manufacturing rough-textured face-brick on a large scale in Iowa.

The Winterset (Ia.) Brick and Tile Company was recently put in operation by Mr. Drenneck. Altho a former attempt

KOPPEL
Clay and Dryer Cars
Electromobile Industrial Trucks

Write for catalogs

PLANT
KOPPEL
PA.

ORENSTEIN-ARTHUR KOPPEL CO.
BRANCHES THROUGHOUT THE WORLD.

Sales Offices:
New York
Chicago
Pittsburgh
San Francisco

The "Electromobile"—Electrically Driven Industrial Truck.

You won't have to worry about competition if you treat your clay with

R. H. Precipitated
Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. East Liverpool, O. Philadelphia, Pa.
Boston, Mass. New Orleans, La.

to operate this plant proved unprofitable, it is hoped that with the favorable market conditions now prevailing thruout the state for both brick and tile, the present undertaking will be a success.

A new company is being organized for the purpose of building a plant at Knoxville, Ia., and working the clay in the northern part of the town. This town already has two plants, one being conducted by the state as a part of its inebriate institution, and the other a small tile plant on the outskirts, operated by King Brothers. It is expected that the new company, however, will eclipse in size and capacity both of the other plants. Robert Goodwin, formerly superintendent of the brick plant connected with the state institution, has resigned from that position and is to be president of the new company.

Kentucky

Isaac Tyler of the Tyler Building Supply Company, Louisville, reports several attractive orders for residence work as being received and that shipments are being made to various of the larger jobs already sold, but that there is not at this time a great deal of brick being marketed in Louisville. He and Leo M. Parsons are working hard on a number of prospects, however, and the outlook is satisfactory.

Operations continue on a full time basis at the plant of the Southern Brick and Tile Company, Louisville. The bulk of the shipments with this company are to the country points where there is much building. Some of the orders are for car lots, it was stated, but more are for larger shipments. Tile, also, altho it is not the best time now for drainage operations, is showing a great deal of activity and the outlook is for a good fall trade. The farmers are having a fairly prosperous year, and the prospects are that if they hold their produce it will net them more than the present market. Credit conditions and collections are good in the country.

Most of the brick manufacturing and clayworking plants of Kentucky are understood to have accepted the new workmen's compensation law which became effective on August 1. The law is regarded as a fair one, having been drafted at joint conferences between employers and labor. Employers and employes who decline to accept it are deprived of various common law defences and, since the rate of insurance is not high, it is considered good policy to go in under it. No state fund is created but the insurance is carried by commercial companies or by mutual organizations, or where the employing concern can show its ability to do so, sometimes by the employer.

Oscar Hillenbrand, of the Hillenbrand Brick Manufacturing Company, Louisville, reports orders ahead for common brick amounting to half a million, and face-brick orders for residences reaching a total of a hundred thousand brick. July was not remarkable as a sales month, he said, and August did not begin with much of a rush, but business is satisfactory and the outlook excellent. Mr. Hillenbrand is an incorporator of the Citizens Coal Company, which will engage in the retail coal business this winter. This will enable the brick company to keep its men and teams busy thruout the year and supply the company with coal for its kilns. "We'll make it hot for our competitors in summer with brick and warm for them in winter with coal," said Mr. Hillenbrand.

"Nothing Succeeds Like Success"

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HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Have been placed in
EIGHT MORE
CERAMIC PLANTS
Since the Cleveland convention

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IT'S the man who doesn't advertise that you ought to be afraid to deal with.

The man who advertises makes promises he is compelled to live up to—he is the one you should trust with your business.

But look out for the man who has not sufficient confidence in his own product to tell all the world about it.

"In Silence Lies Deceit"

Maine

Brick are being burned at the Proctor and Bowie plant, Winslow, Me., the firm reporting an unusually large number of orders to be filled during the season.

The brick plant of the Purinton Company on College avenue, Waterville, Me., is working to capacity. The firm has a large contract to fill for the Keyes Fibre Company which is doing a lot of new construction work and also has several large orders from out-of-town points to be filled.

Michigan

The National Fireproofing Company has opened an office in the Builders' and Traders' Exchange, Grand Rapids, Mich., which is in charge of W. G. Campbell.

"That and This" is the title of a new booklet just issued by Frederic B. Stevens, a manufacturer of fire-brick, Detroit. It is of griping interest, filled from cover to cover with talks on business subjects. There is a historical sketch of Detroit that is extremely interesting, covering the city's development and growth from the time of the settlement of the first white man.

Minnesota

The plant of the Duluth (Minn.) Clay Products Company, after having been overhauled and put into good operating condition, is now making brick. The plant, however, is not as yet in perfect condition, since trouble is still experienced with water getting into the pit. Brick, tile and pottery are to be made when all of the present difficulties have been overcome.

Missouri

Since the first of the year the A. P. Green Fire Brick Company, Mexico, Mo., has doubled its capacity and output. Furthermore, in order to better serve its growing list of customers and take care of greatly increased sales, the company has opened district offices at the following points: Chicago, Ill., H. W. Risher in charge; St. Louis, Mo., Robert H. Miller in charge, and Tulsa, Okla., George E. Ford, vice-president of the company, in charge. The main object of these offices will be to give prompt service and personal attention to customers' wants. The plants and general offices still continue to be located at Mexico, Mo.

Nebraska

The Smith Brick Company of Omaha, Neb., has taken out permits for the construction of a new plant at Twenty-first and Dorcas streets. This company already operates a plant on the south side of the city but this will be torn down and the machinery removed to the new plant, when it is completed. The company has also acquired several lots adjoining the railroad tracks and is converting these from an unleveled to a smooth site. The clay obtained by this operation is to be used in the manufacture of brick, while the lots are to be sold for warehouse sites. This company has for many years past been leveling the city lots in the vicinity of its old plant and using the clay for its brick. There are fifteen acres in the warehouse plot and excavation has gone down twenty feet. However, it will be necessary to take out from thirty to forty feet before the level of the railroad tracks is reached.

New Jersey

News comes from New Jersey to the effect that business has been of unusual volume with the brick manufacturers and that practically every plant has been operating to capacity in an effort to fill the large orders on hand.

The Architectural Tile Company has been incorporated with

Picture This Truck

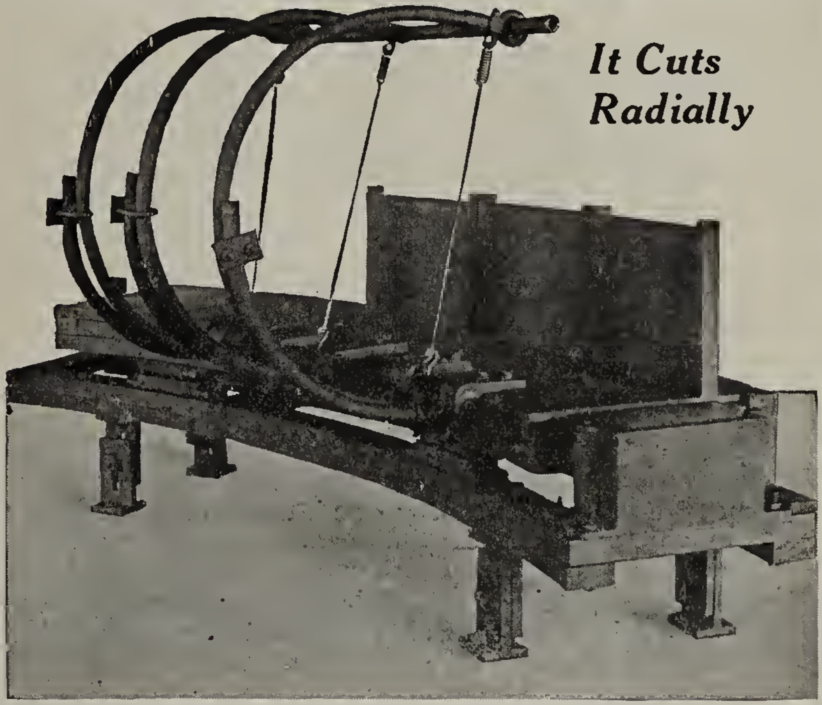
in your plant during this hot summer and imagine how much easier it is to move the ware at three times the speed in lots like this.

Elwell-Parker Self-Loading Trucks

make the work easier and do it at less expense. Get our opinion as to what can be accomplished in your plant.

The Elwell-Parker Electric Co.
Cleveland

Radial Silo Block Cutting Table



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Learn full partculars and facts regarding this machine. You will consider it one of your best investments. Modern new machinery pays always. Orders are coming very satisfactorily.

Crawford & McCrimmon Company, Brazil, Ind.
Established 47 Years
Brand New Shops. Chock full of industrial activity.

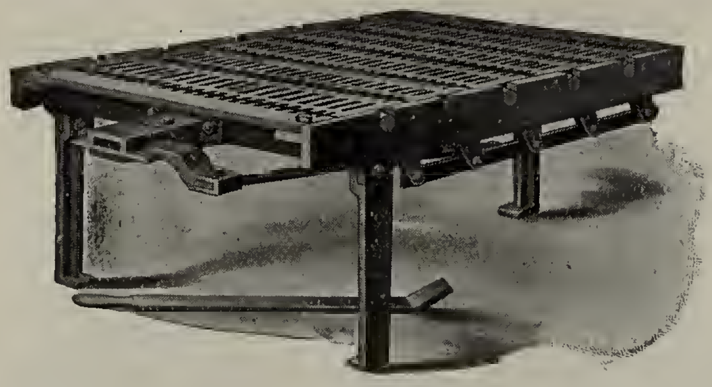
Your Clay May Be Different, But—

Absolute control of the drying elements (heat, humidity and circulation of air) makes THE STANDARD Drier adaptable for drying the **most difficult** clays successfully.

This fact we have demonstrated time and again to brick manufacturers with "different" clays to contend against.

Let us tell you what we will **specifically guarantee** in your case. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition—it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

a capital stock of $150,000 at Keyport, N. J., to manufacture brick, tile and fireproofing. The incorporators of this company are Anthony W. Cristiana, Mabel R. Cristiana, both of Keyport, and Oscar R. Hungerford of New York City.

Many improvements have recently been made at the plant of the National Fireproofing Company, Lorillards, N. J. Several new boilers have been installed to take care of increased operations, and houses have been built for the workmen at the plant. The company has also installed a new steam shovel for use in its pit, to take the place of a shovel that has been in service for the past twenty-eight years.

North Dakota

The Hebron Fire and Pressed Brick Company, Hebron, N. D., of which W. D. Richardson is general manager, has become a licensee of the Denison Interlocking Tile Corporation, Cleveland, Ohio. The Hebron firm will control the interlocking tile business in North and South Dakota and parts of Montana, Minnesota and Wyoming. Mr. Richardson is well known in the industry.

Ohio

The Cleveland (Ohio) Pottery and Tile Company has increased its capital stock from $10,000 to $20,000.

Among new Ohio corporations is the Empire Tile Company, Cleveland, capital stock $10,000, comprising D. Helmuth, M. J. Noble, E. R. Sherwitz and M. E. Schaub.

According to J. J. Snyder, proprietor of the brick plant operated at 903 Metcalf avenue, Lima, Ohio, the clay pit has been exhausted and, as a result, the plant will have to be abandoned.

The Saratoga Fire Clay Company of Cleveland, Ohio, has been incorporated with a capital of $20,000 to deal in fire-clay and clay products. The incorporators are F. C. Davis, J. H. Sprankle, L. H. Smith, J. R. Sprankle and F. R. Shunk.

R. L. Watson, located in the Brunson building, Columbus, Ohio, representing the Northwestern Terra Cotta Company of Chicago, has landed the contract for the terra cotta on six large structures to be erected in Dayton, Ohio, by August Achantz.

Another large order has gone to the Farr Brick Company, Cleveland, Ohio, which has just closed the contract for 3,000,000 common-brick for the new Lakewood (Ohio) High School, which will be erected on Bunts road in that suburb. Construction of this building will start within a few weeks.

Knauff and Esterbrook, for many years engaged in the manufacture of fire-brick at Cleveland, Ohio, have disposed of their plant at that point to the Newberg Steel Works of the American Steel and Wire Company. T. G. Jones is superintendent of the plant under the new ownership.

Since purchasing their tile plant at Haviland, Ohio, during June of this year, Mumma Brothers have made many improvements. The number of employes has been reduced from thirty to fifteen by the use of labor-saving machinery. New kilns are to be constructed and a clay digging machine installed at an early date.

Mr. Harrison of the Gaddis-Harrison Company, Columbus, Ohio, large dealers in clay products, reports a good demand for brick, altho there has been a slight let-up due to the vacation period. This condition is believed to be only temporary, however, as the business is generally good. Mr. Harrison looks for an active brick demand during the fall.

A shortage of materials is seen in the recent shipment of 5,000,000 brick to the Farr Brick Company, Cleveland, Ohio, from an outside plant, to relieve the situation in the "Sixth City." Another 5,000,000 brick, from a plant outside of Cleveland, is being shipped to the Goodyear Tire and Rubber Company, Akron, which is adding another large unit to its plants in the "Rubber City."

H. F. White, manager of the brick department of the Hocking Valley Products Company, Columbus, succeeding Carl C. Walters, reports a growing shortage of cars which is affecting shipments to a large degree. The situation appears to be growing worse. Mr. White reports a good demand for certain shades of rough-textured brick, which is far in excess of the supply.

Attorney J. M. Schooler, receiver for the Phillips Tile and Mantel Company, 254 East Town street, Columbus, Ohio, has sold the business, which was a corporation, to David Godsall for about $838.70. The concern was a small one and got into financial difficulties, necessitating the appointment of a receiver. Mr. Godsall is continuing the business at the former location. W. M. Phillips was president, and E. E. Phillips, secretary, of the concern.

Fear of a shortage in building materials in Cleveland because of the possible railroad strike has been set at rest, in part at least, by the Cuyahoga Builders' Supply Company, which concern is circulating photographs of the lake steamer "Scranton" coming into port at the "Sixth City" with a huge cargo of materials consigned to the company's dock warehouses. It's a "stunt" that takes with contractors.

Another indication of the increasing business in fireproof building materials is seen in the need for additional warehouse room by the Cleveland (Ohio) Builders' Supply Company. That concern is planning to erect a warehouse and supply yard on a tract recently purchased on the west side of the city. This yard will be devoted exclusively to the company's west side business. The land alone cost $20,000, and consists of five acres adjacent to the "Big Four" tracks.

One of the worst features of the brick business in the Buckeye state and, possibly in every section of the country, is the growing labor shortage. This is shown at the plants of all manufacturing concerns and has resulted in curtailing the output from fifteen to thirty per cent. at a number of factories. Looking into the future, there is no remedy apparent for this state of affairs, as the labor situation is becoming worse. The coal mining industry has attracted many workmen from clay plants into the mines, it is reported, since the mining industry is booming.

The work of reorganizing the Shawnee (Ohio) Flash Brick Company, the property of which was sold at a receiver's sale several months ago to a committee representing the bondholders, is progressing satisfactorily. The plans are not as yet ready for an announcement, however, but it will not be long before they are. The committee representing the bondholders consists of L. W. Tussing, D. L. Mauger, J. J. Enlows, and John Koontz. The property is located at Shawnee, Ohio, and consists of a large face-brick manufacturing plant. The reorganization is being carried on in Columbus, Ohio.

A quietus has been put on talk that building operations have been hampered in Cleveland, Ohio, on account of the slightly higher prices prevailing for some materials, by facts compiled for the Society Advocating Fire Elimination. While building operations early in the season were held back, according to Ralph P. Stoddard, secretary, con-

Jenkins Bros. Valves

Specifying Jenkins Bros. means freedom from valve troubles.

Means getting the original Jenkins renewable disc valves, with body, trimmings and all working parts strong and well proportioned. Means getting valves made of a superior grade of new steam metal—no scrap or yellow brass.

Specifying Jenkins Bros. also means getting valves which seldom wear out in service. All parts are made to gauge and are interchangeable, and when necessary repair parts can be obtained through your dealer at nominal cost. Most of the wear comes on the disc, which can be replaced easily, quickly and inexpensively.

Look for the trade mark and specify the name in full—Jenkins Bros.

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80 White Street. New York. 524 Atlantic Avenue. Boston.
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Jenkins Bros. Limited, Montreal, Canada, and London, E. C. England.

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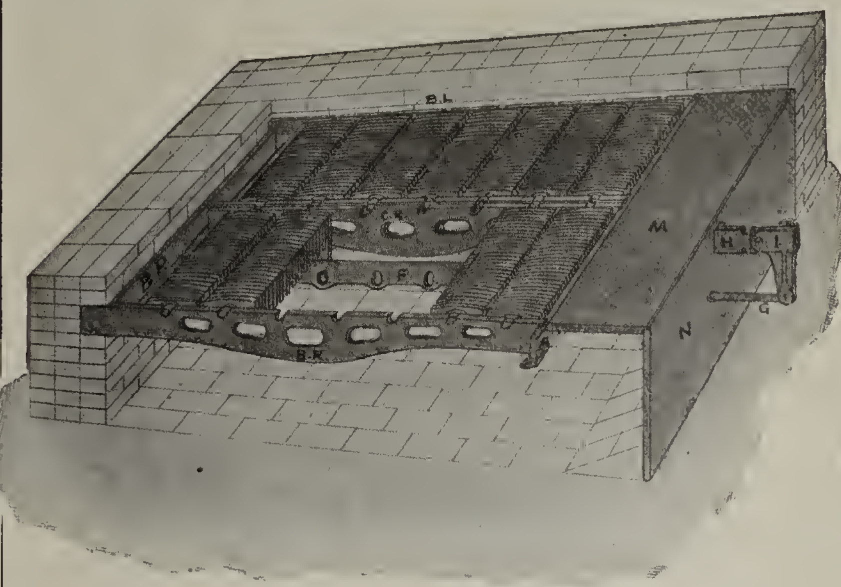
Those brick companies that have installed the

CYCLONE BOILER GRATES

never have to worry about their power plants because they know they are getting more heat out of less fuel than they have ever been able to get in the past.

We had to prove it to them first, however, just the same as we ask the opportunity to prove it to you—by installing our grates on **90 days' trial.**



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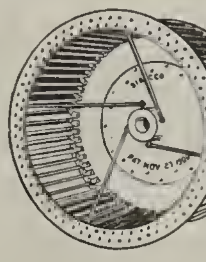
BUFFALO, N. Y.



From Toughest Brick to Most Delicate Pottery

ALL CLAY PRODUCTS can be improved through the use of Sirocco Fans in the drying process.

Sirocco Fans give the manufacturer of clay products almost absolute control over the amount of moisture removed from the product. He can speed up the drying process as far as is advisable with perfect confidence that it will not run over into the danger zone. There will be an uniformity in his products that will mean a steady market and no chance for competitors to cut in and take regular trade away because of one lot of off-quality goods.

The productiveness of other parts of pottery plants can be greatly increased if Sirocco Heating and Ventilating Systems are installed. Saturated air, such as is only too often found in clay plants, takes the "life" out of the workmen. They can neither work so well nor so much. Materials and time are wasted.

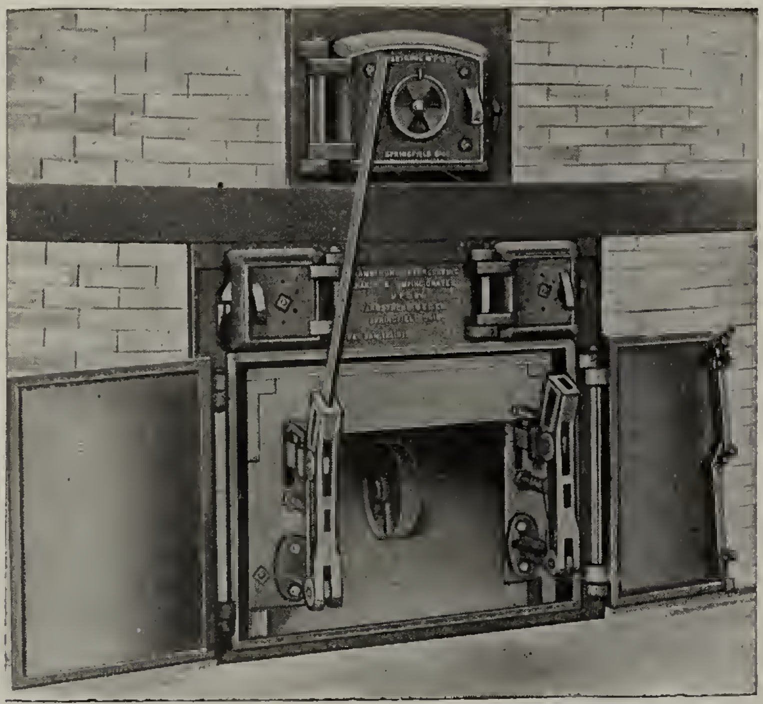
The Sirocco Ventilating System will remove excess moisture, supply fresh air, and generally speed up production.

Write for Booklet for information on Sirocco Fans for drying clay products, and "The Comfortable Shop." No. 13-A on the profitable methods used by the country's biggest factories in improving working conditions.

American Blower Company

Detroit, Michigan

Branches Everywhere



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

tractors and others planning construction work now realize the advances have been well founded, and that prices are normal under the prevailing conditions. Realizing that prices may go still higher, builders are taking advantage of the present markets.

Oregon

An industry that promises to develop into one of considerable importance at Joseph, Ore., has been started by the Enterprise Brick Company, of which concern C. G. Holst is the manager. A kiln containing common-brick has been set and is ready for burning, while another one containing 200,000 brick is about to be started. The brick sell at ten dollars per thousand, and the local demand is brisk.

Pennsylvania

The Joseph Soisson Fire Brick Company has recently made several improvements at its Volcano (Pa.) plant, where the company has undertaken the manufacture of silica brick.

The Freeport (Pa.) Clay Products Company is changing its product from a face to a fire-brick. Operations have been temporarily suspended at the plant while the new machinery is being installed.

Building operations continue active in Allenton, Pa., many large orders for brick having been placed recently. Thirty-eight permits were issued during the month of July for new structures and the majority of the work is to be of brick construction.

According to a rumor recently circulated in Philadelphia, Montgomery county roads are to be paved with brick manufactured by convict labor at a county owned brick plant. It is understood that this plan is being considered by County Controller William D. Heebner of Landsdale, and the board of county commissioners, of which George D. Sullivan of Lower Merion township, is president.

A merger has been filed with the Secretary of the Commonwealth of Pennsylvania consolidating the Vulcan Refractories Company of Latrobe and the McFeeley Brick Company, chartered in New Jersey. The name of the new concern will be the McFeeley Brick Company and the capital stock $160,000. Offices will be maintained in Latrobe.

The annual convention of the Bricklayers', Masons' and Plasters' International Union was recently held in Shamokin, Pa., and was attended by a large percentage of the membership. Much interest was exhibited in the various sessions, matters of vital importance being discussed. In addition to the routine business transacted at the convention, many diversions were offered those in attendance and the convention was voted one of the best ever held by the organization.

An accident occurred recently at the Carroll Brick Works, Sixty-seventh street and Gibson avenue, Philadelphia, Pa., which, while unfortunate, of course, still has an aspect of good fortune for Nicholas Carrollette, twenty years of age, who became entangled in a grinder. Nicholas' life was saved due to quick thinking on the part of a fellow employe who stopped the machinery. The injured man is in the hospital, his left leg having been amputated.

A transaction which involved several thousand dollars was recently consummated at Watsontown, Pa., when the Ridgway Brick Company took over the business of the Keystone Brick Company. Those interested in the new concern will begin immediately the erection of additional kilns at the newly acquired plant, together with the making of other improvements which will increase the capacity of the plant twenty-five per cent. Hollow-tile will also be manufactured on a large scale by the new company, in addition to paving and building brick now being made. The erection of houses for the use of the employes is being planned.

Business conditions in Philadelphia remain practically the same as during the past five or six weeks, that is to say there is quite a brisk demand for building brick and for brick to be used in sewer construction work, but little or no demand for vitrified paving-brick. Many members of the trade in this vicinity are at the present time enjoying vacation trips and it seems to be the general attitude to accept conditions as they are and await the advent of the fall season. The majority of manufacturers and dealers are confident that business will increase with leaps and bounds within a few weeks and so a strong feeling of optimism prevails at this writing.

Quebec

The Superior Tile Company, Ltd., has been incorporated at Montreal, Que., Can., with a capital stock of $40,000, by Gaylen R. Duncan, Robert D. Sutherland, Frederick Babe and others, to manufacture brick, tile and sewer-pipe.

Saskatchewan

The Bruno (Sask.) Clay Works has arranged for a license from the Denison Interlocking Tile Corporation, and will begin the development of its hollow-tile business in that territory in the spring of 1917.

South Carolina

The Sumter (S. C.) Brick Works, manufacturing a rough-textured face-brick, is to supply the facing material for the Savannah (Ga.) Auditorium. This company is experiencing a large volume of business and plans to increase its capacity in the fall.

South Dakota

"We are having the best business this season that we have ever had," is the report of C. E. Phillips, proprietor of the Groton (S. D.) Brick Works. With the yard almost completely stripped of its stock and a contract on hand for brick to the sum of sixteen hundred dollars to be filled by August 20, this plant is working to capacity trying to keep production abreast of demand. According to Mr. Phillips, teams are coming to his plant for brick from as far distant as twenty-five miles—this being characteristic of his "local" trade. Prices are very satisfactory, ranging from ten to fifteen dollars according to the quality of the brick.

Tennessee

The Mifflin-Hood Pottery Clay Products Company at Daisy, Tenn., will begin at once the erection of a $40,000 plant for the manufacture of clay acid rings. Special machinery has been ordered and it is expected that the plant will be in operation by the early fall. B. Mifflin-Hood of Atlanta, Ga., will be president of the concern and C. L. Krager, vice-president and general manager. The plant will manufacture floor, wall and roofing tile but the special product will be rings for acid towers. In the manufacture of sulphuric acid, now in big demand for munitions, it is necessary to let the acid settle in high towers lined with rings, or blocks of clay. The clay that enters into these rings or clay blocks must run high in alumina, and it is said that the clay deposits at Daisy

Bucyrus-Westinghouse Electric Dragline Excavator at Plant of Cherokee Brick Co., Macon, Ga.

Westinghouse Electric-Driven Shovels

do everything steam shovels can do, and

Do It Better

Why bother with coal, service pipes, water supply and other inconveniences common to all steam-driven shovels, when you can do away with them by using electric-driven shovels?

Westinghouse Electric-Driven Shovels are always ready for work at a minute's notice; require no licensed engineer; are most economical to maintain and operate; have no standby losses.

The Westinghouse Motor and Control equipment is specially designed for the service, and is so simple and reliable that anyone of ordinary intelligence quickly becomes an expert operator.

Ask our nearest office to send you Descriptive Leaflet No. 3710; it gives some interesting particulars.

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Sales Offices in All Large American Cities

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Just Landed—

Columbus, Ohio

—is our new address now.

In order to give the increasing number of clayworkers, who are adopting the Hook System, the best possible service, we had to have more time, also better mail and transportation accommodations. We gained all three by coming to Columbus.

We can furnish you PLANS—MASONS—KILN BANDS—GRATE BARS—KILN ACCESSORIES OF ALL KINDS—AND SAVE YOU MONEY.

WHERE DESIRED WE CAN FURNISH ALL MATERIALS AND BUILD YOUR KILNS, OF WHATEVER TYPE, COMPLETE READY FOR WARE—IN MINIMUM TIME.

Give us an opportunity to figure on your work—see what we can save you.

Hook Patent Kiln Company
614-15 Commerce Building
Columbus, Ohio

are among the few in the country that are satisfactory for this purpose.

Virginia

The Glasgow (Va.) Clay Products Company is the name of a newly incorporated concern, having a maximum capital stock of $100,000. C. H. Locher of New York is president of the company while H. O. Locher of Glasgow is secretary and treasurer.

Washington

The Chewelah Brick and Lime Company of Spokane, Wash., is engaged in building a new down-draft kiln with a capacity of 50,000 brick and a chimney 105 feet high.

Wisconsin

A kiln with a capacity of 85,000 brick was recently erected on Con. Gminer's brick plant at Waupaca, Wis. Two more kilns are soon to follow and plans are being entertained for installing machinery to manufacture tile, sewer-pipe and marbles.

* * *

PHILADELPHIA

the CITY *of* BRICK HOMES

(*Continued from Page* 306)

smaller thorofares are kept as "clean as new pins" and in many instances are pretty and interesting.

The purpose of this article is to describe the homes of the "ordinary" people, nevertheless the reader is to understand that Philadelphia can also boast of many stately and elegant mansions of the rich. Along Broad street, Old York road, in Germantown and West Philadelphia, for instance, are palaces fit for the residences of kings. This is the wonderful thing about "The City of Brotherly Love." A man can buy a neat little home for as low as $1,000. Or, if he has money enough, he can have his pick of homes ranging in prices reaching beyond the hundred thousand dollar mark.

Some of the larger brick houses have simple but beautiful touches of ornamentation added to their fronts thru the incorporation of "header profiles," "stretcher profiles," base mouldings, "jamb brick," reeded and fluted brick, decorative beads and borders, panel blocks, etc. These, however, are applied very sparingly, giving just sufficient decoration to break monotony. Cornices and bay windows are usually made of sheet metal, painted dark brown, or painted with sand-stone finish. The major portion of front porches are of wood, altho in numerous cases the base and columns of the porches are of fancy brick.

In addition to its hundreds of thousands of individual homes, Philadelphia also possesses a large number of apartment houses, many of them being of brick in beautiful styles of architecture. Much could also be written about the handsome churches, factories and various other buildings, but this article is to deal exclusively with the subject of homes.

Viewed from every angle, "The City of Homes" is a very beautiful place, and the greater number of its thousands of brick homes are decidedly pleasing to the eye. Many of the streets and avenues, including even some of the smaller "roads," are lined with long rows of shade trees. In the newer sections not a few of the houses possess terraces in front of their porches, and during the summer well-kept lawns and flower beds enhance the beauty of the scene. A considerable number of the smaller streets are paved with a special heavy red brick, and the residents take pride in keeping the thorofares spic and span.

The advantages of the ordinary brick houses are numerous. It is fairly cool in hot weather, and in winter it can be kept warm at a moderate expense. The majority of Philadelphia residences are heated during cold weather by means of hot air furnaces, tho practically all of the dwellings erected within the last few years have hot water heating systems. To give a rough estimate, it might be said that from six to eight tons of coal are used yearly to keep the average small home warm.

One seldom hears of a brick house being destroyed by fire in the "Quaker City." The writer recalls several instances when the floors and roofs of brick residences were burned in severe fires leaving the walls standing firmly with scarcely any damage, except being discolored by smoke. There have been other cases when lumber yards, mills, and factories were consumed by great fires while rows of brick houses directly across from the conflagration suffered no greater damage than a scorching of their woodwork. Philadelphia has a certain percentage of fires annually the same as any other city, but it is a fact that when any of these fires originate in brick residences they amount to very little material damage. With few exceptions, the firemen have such blazes extinguished within a few minutes. Can the same be said in the case of a fire in a frame house? In the suburban sections of Brooklyn, for example, the writer has seen a large frame cottage almost entirely consumed by fire while the fireman were fighting the blaze.

In the matter of repairs there is a big saving in a brick house, for its walls will stand for many years without requiring renovating, and it is only necessary to have the woodwork painted at intervals, the outside woodwork being only a small part of a modern brick building. A brick dwelling when properly lined is never damp in rainy weather, thus the papering and painting of the interior will last without deterioration for very long periods.

The "City of Brotherly Love" owes its greatness not so much to its remarkable number of industries, its large number of business buildings, its splendid parks, and so forth, as to its great number of comfortable homes which are of such wonderful utility to the working class of people. Think of it: "The World's Greatest Workshop" is so well regulated that a pretty, comfortable, economical, private residence is provided for every one of its many thousands of families! And, it is not too much to claim that brick and other clay products have played a large part in the development of the "Quaker City," and have had much to do with earning for it the noble title, "The City of Homes."

⁂

DRILLING *and* BLASTING SHALE BANKS

(*Continued from Page* 322)

Mr. Blair: They have never questioned that. In Pennsylvania a mine employing less than fifteen men has never been subject to state inspection up to the present time. They may effect something of that kind; legislation is getting pretty severe on that subject.

Mr. Humphrey: At present the Pennsylvania laws permit the use of gasoline engines in a mine. The Ohio laws do not. Of course, in a strictly shale mine there is no explosive dust which would make dangerous the use of gasoline. I

Why You Should Try GANDY

THERE are thousands and thousands of GANDY Belts giving service in practically every kind of belt duty.

A large proportion of them were originally purchased to replace leather or rubber, which they did most effectively.

GANDY Belts give equal or longer service than other belts, and cost less than rubber and leather, which should warrant your giving GANDY a trial in your own plant.

Once you try GANDY, the lower cost, greater wear, efficient service, oil—water—heat—dust—and gas-proof features, all of which you will find are a part of GANDY service, will cause you to continue its use, just as thousands of other satisfied users have.

If you have a place where you will soon need a new belt, try a GANDY there. Write us for samples and prices.

Gandy Belting Company
732 West Pratt Street, Baltimore, Md.

New York Branch
36 Warren Street

LAKEWOOD LINE
BUILT TO LAST

The Leadership of "Lakewood"

THAT this leadership exists actually, and is not merely a myth, is due to the 18 years that have been given to the study of handling and haulage economies in clay product plants.

The Lakewood Line—"built to last"—is now to be described to you in detail. We suggest that it will be greatly to your advantage if you will watch this space each issue, because we will tell you many things that can't help but be of unusual interest to you.

In the meantime, if you are in immediate need of cars of any kind—transfer trucks, either hand or electric—clam shell buckets—steel pallets—kiln bands — turntables — portable track and switches—write us and ask about our free consulting engineering service.

This is a book you ought to have —we'll send it if you'll ask

Lakewood Engineering Co.
Cleveland, Ohio

think possibly that is the reason it has never come under state inspection in that particular.

Mr. Smith: We have had some experience in blasting shale, but have never used any drill machine. In order to get the required amount of ammunition in the bottom of the hole, we would, after drilling the hole, explode some light charge of dynamite so as to pot it, as we call it, and in that way we get what Mr. Humphrey does in the large hole without any special machinery for making such a large hole. Our experience is that it pots it sufficiently. Then we use black powder and we make pot enough so that we can get enough of this black powder in the bottom of the hole. Our stuff is harder in the bottom than in the top. We have obtained very good results by that method. When Mr. Humphrey said that he exploded single holes, he didn't say he wouldn't use electricity, but advised electricity all except for single holes. Why not use electricity for a single hole?

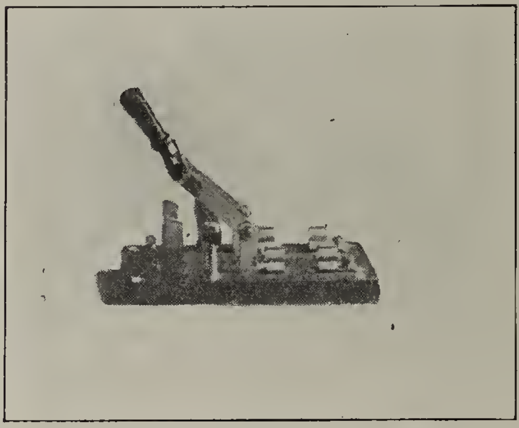


Fig. 7—Spring Switch That Breaks the Contact as Soon as the Handle Is Released

Mr. Humphrey: When more than one hole is exploded at a time, electricity should always be used. Where one small charge, located in a difficult place, is to be exploded, it is often more advisable to use a cap and fuse than it is to carry around a blasting battery and arrange long lead wires.

Mr. Smith: My opinion would be that it is more advisable to use electricity even in the one hole, for the reason that a fuse is not nearly so reliable, the time is longer, and a fuse has been known to hang fire. When you attempt to explode the electric cap, and it does not explode, you do what you want to do, knowing it will not explode, but if the fuse don't explode, you do not know whether it has gone out or is hanging fire.

Mr. Humphrey: I agree that electrical blasting is better and gives better results. We merely use the fuse and cap because it is convenient when going down over a large hill. There might be a half dozen chunks from the blast that would need pot shooting, as we call it, and then we prefer to use a fuse and cap.

Mr. Blair: I have found the use of electrical exploders to be very satisfactory in outside work such as Mr. Humphrey referred to. In a mine, however, you often have conditions of propping which makes the putting off of six or eight blast holes at one time undesirable, especially where you have to carry your props up to the face. Such practice would be quite expensive for the reason that, when you blow out a chunk of shale twelve or fourteen feet square, and down a mine entry, the props generally go, and it costs considerable money to replace them. We have found it very satisfactory on a face of that kind, to drill say three holes in the center, four or five in the middle and three on the top, then to spring one center hole. Put into that center hole one or two sticks of dynamite, explode the charge, and then load that hole rather heavily as compared with the other holes. It usually requires in our materials six or eight sticks to the hole, and in loading the center hole, twelve or fifteen sticks or six or eight pounds of dynamite. These holes are seven or eight feet deep. We cut our fuses in such lengths that the heavy hole will be fired first and the springing of that hole and the extra quantity of dynamite gives you an opening there which will then allow the timing of the proper holes in rotation, blowing your material to the center of the shot or the center of the room and not down the entry, and we have found that to be of considerable advantage.

Mr. Richardson: I am very glad that we have had this paper. Mr. Humphrey has taken up a subject that is of general interest to brick manufacturers. In regard to power drilling and shooting—we are in a mining country, a coal mining country, and the clay miners were formerly coal miners or they are descendants of coal miners, and there is a great deal of practical information among those people about the drilling of holes and the shooting of powder and dynamite. As this work is all done by the ton, and they pay for their own powder, we leave it to them, but it is quite noticeable, the difference between some of the old expert miners and the younger men in the amount of powder used. We do not have to dictate in regard to where they drill their holes, nor how they fire them, because they are doing the work by the ton, so I have not given that point very much study. I will say, however, that the electric auger drilling machine is used in many clay mines of the Hocking Valley. I do not believe that we would be permitted to use a gasoline engine in our mines, not that there are any explosive gases in clay mines, but we are under very rigid inspection in Ohio and especially thruout our district, and anything that even made bad air in the mine would be objectionable and probably would not be allowed. They won't let us use dynamite because of its unhealthy action on the men in the mine, and electric power or compressed air is the only practical thing for us. Pretty good drills of the type that Mr. Blair has spoken of, using electric power, are now on the market. Electrical power is usually more practical because it can be used for haulage and for so many purposes about such a plant.

* * *

South American Markets for Building Materials and Machinery to Be Studied

A complete report on the markets for construction materials and machinery in South America is to be made by the Bureau of Foreign and Domestic Commerce, and in its preparation a representative of the Bureau will conduct an investigation covering all the southern Republics.

The Bureau intends to offer for the benefit of American business men such information and recommendations as will lay a substantial foundation for trade extension in the lines mentioned. For the important work to be done it has selected William W. Ewing, who has had twenty-seven years experience in engineering and construction work, four of which were spent in foreign countries, and who is a member of the American Society of Civil Engineers and American Society for Testing Materials. Mr. Ewing was chief engineer of the Compania General de Asfatos y Portland, Barcelona, Spain; engineer of tests in the New York Department of Buildings for six years, and engineer-in-charge for a number of years with some of the largest international engineering, construction and equipment companies.

In investigating construction materials, attention will be given to markets for products used in building work, heavy engineering construction, and port and road projects, while the construction machinery on which information is desired includes devices, equipment and apparatus usually employed in such work. This is one of twenty important investigations to be conducted this year by the Bureau in the interest of American foreign trade.

Mr. Ewing will spend the next three months visiting the

"It Has Been an Important Factor in Improving the Quality of Our Tile."

That's what E. H. Haeger, Manager of Haeger Brick & Tile Company of Dundee, Illinois, said recently when asked about the

Buckeye Clay Digger

which that company has been using continuously since 1910. He said further: "It has given us most satisfactory service—in digging, the clay is broken up into fine pieces and assists greatly in obtaining a thorough mixture."

Mr. Haeger's statement embodies one of the principal reasons the Buckeye Clay Digger has given such remarkable satisfaction in clay plants—it is not only a cost-saver in digging but it so thoroughly mixes the clay that it eliminates nearly all the cost of preparing the clay later.

The Buckeye is simple in operation, easy to move about, and can be furnished with either electric, gasoline or steam power.
We have a book, "Digging Clay for Profit," that we would like to send you.

THE BUCKEYE TRACTION DITCHER CO.
FINDLAY, OHIO.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Its Ability to Carry Weight is *Built-In*

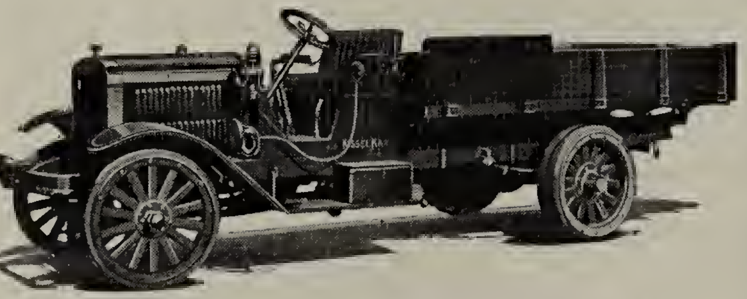
BRICK and clay manufacturers find that KisselKar Trucks are built for quick transportation of heavy loads under all road conditions. Manufacturers who have heretofore had to make small load deliveries on account of the inability of their transportation vehicles to stand heavy loads, are now delivering more products in less time and at a smaller cost with this new worm-drive KisselKar "4-Tonner."

For manufacturers who need trucks for auxiliary use the lighter KisselKar Trucks are the solution of this important branch of their transportation department.

KISSELKAR TRUCKS

Four New Sizes
Chassis Prices $950 to $2850

New KisselKar Worm-Drive
Truck "Built to carry 4 Tons"
$2850 Chassis Price



Haulage Durability Built In

UNDER-the-surface, next-to-the-road construction details of KisselKar Trucks are such as to guarantee their ability to stand up under their rated loads under all conditions. The matchless Kissel-built motor, giving a power plant equal to all emergencies—a perfected worm-drive rear axle, sturdy chassis—backed by Kissel reputation—is establishing low cost haulage records among those brick and clay manufacturers who have their transportation departments "Kisselized."

Write for truck information and data on your transportation problems.

See our local representative or address

KISSEL MOTOR CAR CO.
568 Kissel Ave. Hartford, Wis.

Branches, display rooms and service stations in all principal cities and towns

principal cities of the United States and conferring with manufacturers with regard to the work he will do in South America. Conferences with him may be arranged and suggestions are invited. Correspondence should be directed to the Division of Commercial Agents, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.

A Timely Bulletin On Feldspar

"The Feldspars of the New England and North Appalachian States" is the title of Bulletin 92, just issued by the United States Bureau of Mines, Department of the Interior, that may be had for the asking:

The author, A. S. Watts, says: "The Bureau of Mines has been conducting an investigation of the feldspar resources of the New England and North Appalachian States with a view to greater efficiency and economy in their utilization. Such an investigation was deemed necessary, not only because of the continued and increasing consumption of these minerals, but especially because of the demand for better technical control of the raw materials that are used by the whiteware industries of the United States. Most manufacturers of white pottery wares have only a limited knowledge of the origin, mode of occurrence, and methods of mining and preparation of the materials that they use.

"Heretofore, owing to a belief that the supply of raw material was unlimited, the manufacturer had concerned himself chiefly with the solution of the problems of manufacture. Within the past few years, however, it has been found that difficulties arise in manufacture which can be traced beyond the manufacturing process and are believed to be due to a need of better control of the materials used.

"Furthermore, as competition becomes more severe, more attention must be paid to selection of materials in order to minimize consumption and also to avoid unnecessary expense for transportation of material.

"Doubtless the lack of interest as regards these details has arisen from the fact that in the past a considerable proportion of the whiteware ingredients has been imported and the manufacturer has been forced to rely on the samples submitted and the general uniformity of the source of supply to insure against variation of the material. An extra precaution arising from this lack of definite knowledge still prevails in the common practice of never depending on one source of supply for any one ingredient. Often the products of three or more producers are blended so that if any one shall vary without warning the variation arising from its use will not be sufficient to ruin the ware.

"As the use of domestic materials has increased, the manufacturer has generally depended on the results of tests of samples submitted. The crude materials differ so greatly from the materials purchased, and the treatment necessary to prepare crude material for use involves such an intimate acquaintance with its peculiarities that the users had further cause to neglect to acquaint themselves with the details of its mining and preparation.

"The investigations presented in this bulletin have been undertaken by the Bureau with a view to a better understanding of the conditions which confront the producer of commercial feldspar and also with the object of determining wherein the various deposits of feldspar differ. This information will enable the manufacturer to choose the source of supply which is best suited to his needs, and in case a change is necessary to choose more intelligently the location from which to draw for his future supply."

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

New Link-Belt Price Book

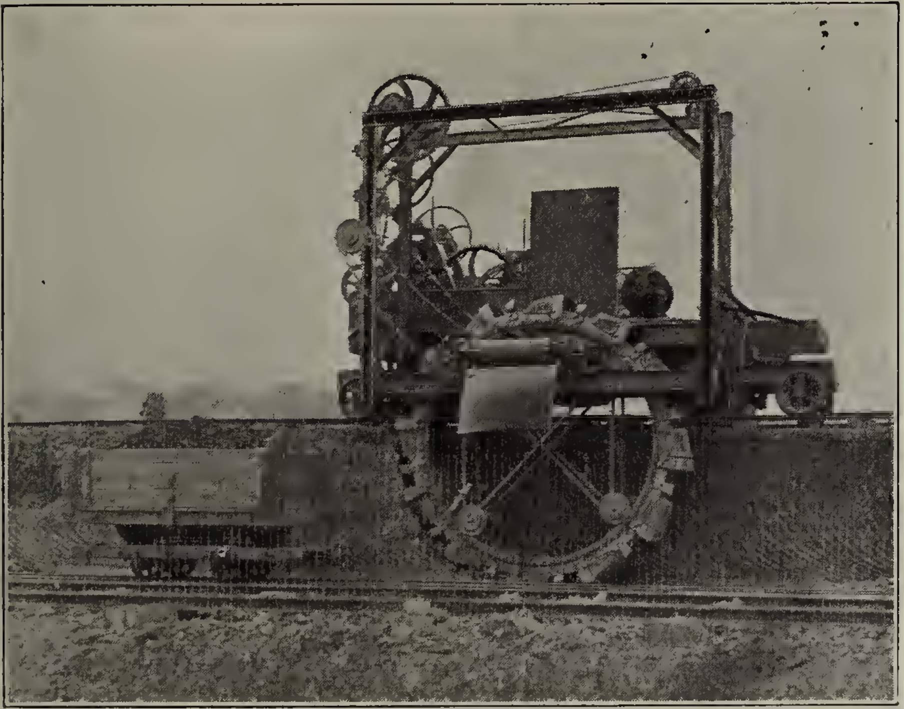
Link-Belt Company, Chicago, Philadelphia and Indianapolis, have issued a new schedule of list prices to apply to their Catalog No. 110. This covers their complete line of link-belt sprocket wheels, traction wheels, gears and malleable iron elevator buckets. The new prices are effective July 15, 1916. There has also been issued by this company a booklet by President Charles Piez entitled "Personal Reminiscences of James Mapes Dodge." As Mr. Piez states in the foreward, he "tells of the struggles, early failures and final great successes of one of the most commanding figures in American invention and engineering, and shows us the genial, charming personality of one who did much to shape our present-day industrial needs." Altogether, this is one of the most interesting biographical sketches to be found in the annals of business literature and well worth the time any business man may give to its reading.

Digging Clay for Profit

Even amongst some of our largest clay product plants many a dollar has been lost before the raw clay ever reached the machine room. And this is only because plant managers have directed their attention more generally to developments in machines, in drying and in burning. The actual digging operations have been much neglected.

But now it is being realized by an increasing number of companies each season that there must be more economical methods used in the pit. This is especially true this season because of the great scarcity of common labor—hand workers are not only expensive to have around but it is almost impossible to get them.

It is not sufficient however to merely resort to mechanical digging. It must be intelligently conceived so it will be profitably prosecuted. The best and most economical method of pit operation is obtained from the device



The Buckeye Digger Also Mixes the Clay without Any Extra Operation

A 1½ Ton Federal Hauling Clay Products

How Would You Like To---

operate a "railroad" of your own

with which you could haul speedily, and over long distances when necessary, right from your door to the exact spot desired without needless rehandling and delay?

The Federal Truck is a veritable small railroad hauling your goods from your place of supply right to the destination—forty or fifty miles if necessary.

The Federal's ability to transport large tonnage over wide territory economically, makes it possible for you to expand and reap bigger profits.

You want a truck that "stands up on the road."

Investigate the Federal.

Write us for practical reports showing costs and results of Federals in the clay products industry.

Our magazine "Traffic News" sent free upon request. You will be interested in the many stories of actual haulage experiences.

Federal Motor Truck Company
Detroit, Michigan
1½, 2, and 3½ Ton Worm Drive Motor Trucks.

The Wise Man of FATE

"Plymouth Locomotive Supplants 16 Horses and 16 Men"

—*Says Dillman*

One Plymouth does the work of sixteen horses and sixteen men for The Lincoln Clay Products Co., of Lincoln, Calif., and does it at such a saving that this concern has discarded the old-fashioned, expensive haulage system entirely and bought an extra Plymouth to complete the haulage equipment. President M. J. Dillman, of this concern, found that—

The Plymouth

Gasoline Industrial Locomotive Has These Six Points of Superiority

1—It costs less to buy. 2—It costs less to install. 3—It costs less to operate. 4—It costs less to maintain. 5—It has greater draw-bar pull. 6—It has greater traction pull.

One of The Plymouths in the Clay Pit of the Lincoln Clay Products Co., Lincoln, Calif.

President Dillman Proves These Points—He Says:

"The Plymouth does as much work for us as sixteen men and sixteen horses. There is no comparison as to cost of installation between horses and The Plymouth, nor as to operation. It costs us $2 a day of nine hours for labor on each Plymouth and we consume five to ten gallons of gasoline and half a gallon of lubricant, depending on how we operate. They answer our purpose better than any other system because we are frequently moving our tracks. The Plymouth handles four cars some 800 feet to connect with a cable hoist, returning to the shale bank in quarter the time it took one horse with one car over the same track."

GET THIS BOOK

We have a book just off the press that tells the complete story of this particular installation and of many similar installations, giving full description, cost data and other valuable information concerning haulage problems similar to your own. A copy is yours for the asking. Use the coupon at the left and send for the book today.

The J. D. Fate Co.
241 Riggs Avenue
Plymouth, Ohio

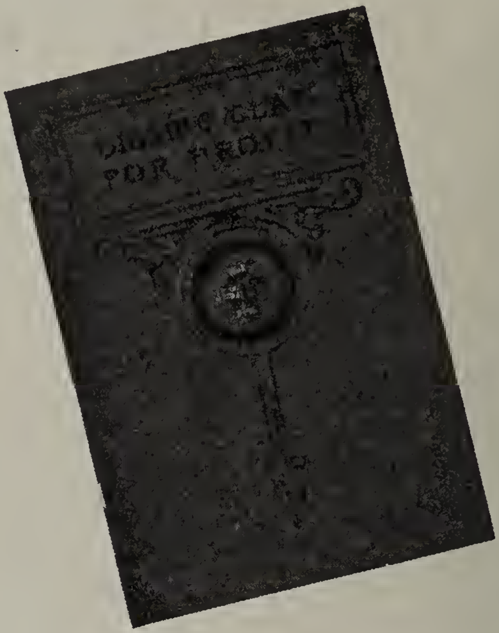
The J. D. Fate Co., 241 Riggs Ave., Plymouth, Ohio.

Send us The Plymouth Book of Facts, this request not to obligate us.

(Firm) ....
(Your Name) ....
(City) ....
(Street) ....
(State) ....

that digs economically and which also mixes the clay without any extra operation.

Such a device is found in the Buckeye Traction Digger which has been operating successfully in some of the finest plants in the country for many years. Among those using it are The Haeger Brick and Tile Company of Dundee, Illinois, and The E. Biglow Company (Tile Manufacturers) of New London, Ohio; each of which is a model plant in its respective line.



Booklet Issued by the Buckeye Traction Ditcher Company

The operation of the Buckeye is so simple that only one man is needed because he can run the machine and watch every detail of the work. Steam, gasoline or electricity can be used.

The Buckeye Traction Ditcher Company of Findlay, Ohio, are the manufacturers of the Buckeye Digger, and their engineers are ready to submit a proposition to any brick or tile manufacturer as to the specific work this machine will do.

Richardson Producer-Gas Continuous Kiln

One reason why producer gas has not been more extensively used in the clay industries is that the kilns hitherto developed for this fuel have not been satisfactory—caused too much trouble in operation and too great expense for repairs. A few, however, of superior intelligence or education, have persevered in the use of producer-gas-fired kilns and have developed certain improvements in kiln and gas producer and in methods of handling that have given them such results with producer gas as they could obtain with no other fuel.

Sixty-five Companies in the Northwest Section of Ohio Have Installed Hook Kilns

The advantages of producer gas firing of continuous kilns may be briefly stated as follows:

1. Clean ware — no deposit of ash on the ware.
2. Oxidizing conditions easily maintained—no flashing.
3. Higher and more uniform temperature attained than by direct firing.
4. Simplifies handling of coal and ashes—all this done at one place.

The inventor of The Richardson Producer-Gas-Fired Continuous Kiln, W. D. Richardson, is well known in the clayworking industries as an engineer and as a practical manufacturer and as a member and ex-president of the National Brick Manufacturers' Association and as a member and ex-president of the American Ceramic Society. He has for the past five years had charge of a face-brick plant using a producer-gas-fired continuous kiln. Through his study and practical experience in this line he developed the kiln hereby presented. The kiln was not offered to the industry until it had been built and every feature thoroly tried out and perfected.

The Richardson Producer-Gas-Fired Continuous Kiln has the following superior features:

1. No gas ducts between the crown arches to prevent proper bracing of the arches and to add to the expense of repairing crowns.
2. No gas ducts in the partition walls between the chambers. Such ducts weaken the walls that support the arches—cracks form through these ducts causing the gas to leak into the chamber ahead and the air to leak into ducts from the chamber behind.
3. Gas ducts underground, well insulated, which means hotter gas delivered to combustion chambers.
4. Gas taken from the top of the main gas ducts instead of from the side.
5. Gas delivered to combustion chambers underneath the air, giving a better mixture, as the combustible gases are lighter than air.
6. Gas conducted into kiln and burned on both sides of every chamber in bags diagonally opposite each other, thus not only securing more uniform distribution of heat and higher temperatures and quicker burns, but the fires on both sides of the partition walls tend to keep these walls vertical and to preserve the true arc of the circle of the crowns, thereby decreasing the cost of repairs.
7. No water-smoking flues over the crowns of the kiln —in the way of operation and repairs.

This is the subject of a treatise recently issued by The Ceramic Supply and Construction Company of Columbus, Ohio, of which company W. D. Richardson is president. This booklet is illustrated quite profusely, and it also describes the Richardson Producer Gas Machine which is used in connection with the kiln.

Hook Moves to Columbus

The Hook Patent Kiln Company, under the management of H. P. Jenks, has been growing so rapidly that the inadequate facilities at Vigo, Ohio, have forced them to move to Columbus, Ohio. They are located at 614-615 Commerce Building.

H. L. Longenecker, a ceramist well known in the clay products industry, recently became associated with Mr. Jenks to assist in taking care of the increased business. Now the move to Columbus is another evidence of this concern's determination to give the trade the very ultimate in service.

Besides this company's chief product—the Hook Patent Kiln —they have also developed several excellent devices to cheapen the cost of constructing kilns and which add to kiln stability.

The Chain of Double Life

A product not entirely new to the clay products industry, and yet just now, for the first time, brot to the attention of manufacturers in this field, is the product of

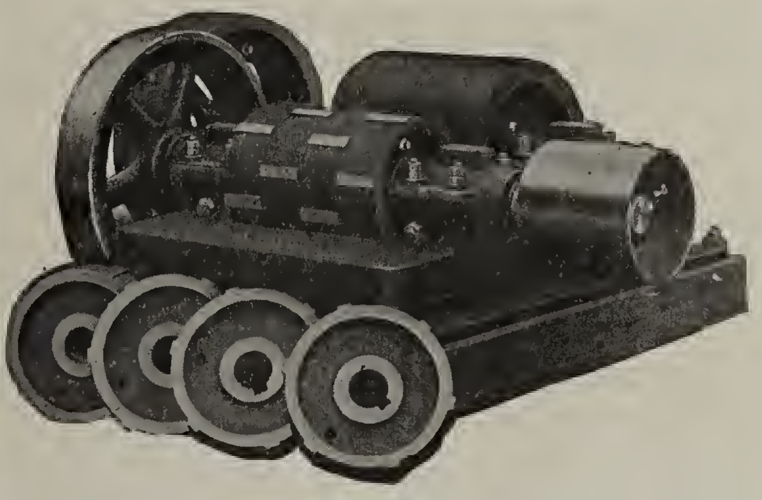
They Call It "The Chain of Double Life"

Here's a Disintegrator for Small Yard Capacity That is Unequaled

This disintegrator is built on the same lines as our No. 1 disintegrator, only smaller. This machine is installed in clay plants in practically every state in the Union and has given full satisfaction in every case. Like other machines of the Famous Fate Line it is designed to give the most efficient service for the lowest cost.

The Fate
No. 2 Disintegrator
Meets Every Small Yard Demand

It will thoroughly prepare seven to fourteen tons of clay per hour, shredding and separating the clay, leaving it in a loose, open condition to absorb water rapidly when being worked in the pug mill. It pulverizes the small stone and separates the larger ones.



Interior View of No. 2 Disintegrator, Showing Chilled Iron Sections.

Note These Specifications

The speed roll is composed of four chilled iron sections each having lugs or teeth set alternately one with the other. By this construction the clay is taken gradually, giving evenness of motion.

The sections are keyed onto a large shaft in such a manner that they are interchangeable and reversible, and when one cutting edge becomes worn they may be reversed and an entirely new cutting service presented to the material.

GET THIS BOOK

The Fate Catalog gives pictorial demonstration of the entire Fate Line of clay-working machinery, as well as specifications. It is a book full of facts that should be in the hands of every clay-worker. Use the coupon on the right and send for it today.

The J. D. Fate Co.
241 Riggs Avenue
Plymouth, Ohio

The J. D. Fate Co., 241 Riggs Ave., Plymouth, Ohio.
We are interested in the following machines or devices and ask that you send us special printed literature on the same, without obligation to us:
(List Items Here)............
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(Firm Name).......................
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(City) ....
(Street) ....
(State) ....

SAY "I SAW IT IN BRICK AND CLAY RECORD"

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

The Union Chain and Manufacturing Company of Seville, Ohio.

This company is making Union Steel Chain Belting for use wherever a sprocket chain is employed, and it is made to run of standard cast iron sprockets. It is also made in a large number of different sizes so as to meet every requirement.

Union Chain has demonstrated in the most severe kind of service that it actually has double the life of ordinary link chains made of similar quality of steel. It has proven its superiority where there is much dirt and grit, as in clay plants. The Union gives more service per dollar. The Chippewa Shale Brick Co., of Chippewa Lake, Ohio wrote recently regarding Union Steel Chain Belting: "If everything in our plant continues to work as smoothly as your chain, we will consider that we have the finest plant in the world."

Every clay products manufacturer who is desirous of eliminating his plant troubles should learn all he can about this remarkable product.

"Boss" System at Kittanning

One of the finest plants being built this year is that of The Kittanning Buff and Grey Brick Company at Kittanning, Pa. It was well planned with the idea of economy in every department coupled with the manufacture of the highest grade product.

The "Boss" System of Firing was decided on and two kilns have been brought to the stage where they are ready to be fired. There will be a battery of 24 kilns when the plant is complete. R. L. Gibson is superintendent of this new Kittanning company.

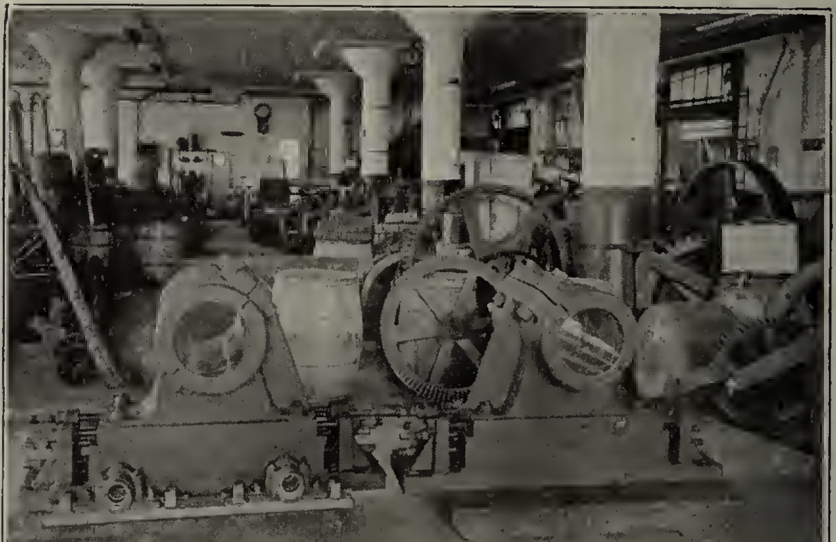
Change in Hettrick Company Name

The Hettrick Brothers Company of Toledo has been merged into a new $1,000,000 corporation recently organized to take over the business. The new company will be known as The Hettrick Manufacturing Company. This arrangement will permit of more extended development of this company's business, made necessary by the constantly increasing demand for Hettrick Red Stitched Canvas Belting, so well known in the clay-products field.

Weller Equipment

The majority of large brick and clayworking operators are of the opinion that their work is the hardest possible service that machinery is called upon to perform and that heavier equipment is necessary than in any other business.

Because of the heavy jars and the abrasive qualities of the material handled, this argument in a sense is true. It is also true that such concerns as the large terminal grain elevators require equipment far heavier and stronger than that found in most of the stone crushing plants.



Huge Bearings for Ten-Inch Shaft

The illustrations reproduced here show some of the main bearings and shafts recently furnished by the Weller Manufacturing Company, Chicago, for a big Duluth elevator.

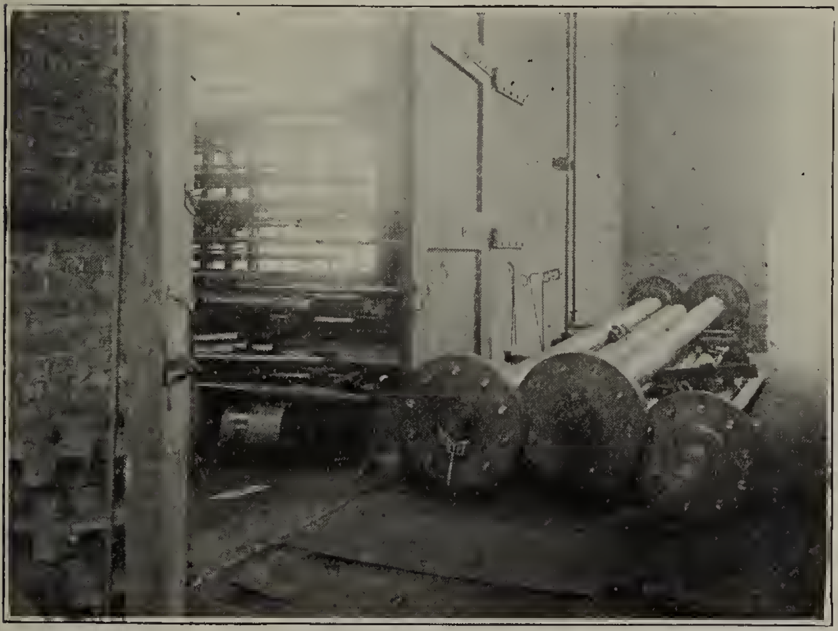
These huge bearings are for 10-inch shaft, and each weighs over 2,500 pounds as it stands. Alongside will be seen two 2 7/16-inch collar oil bearings mounted on a single base plate—giving an idea of the massiveness of the bearings shown.

Power is transmitted by means of well-designed rope drives and "Stand Still" Steel Plate Friction Clutches, the main receiving sheave on the line shaft being 120 inches in diameter, carrying 17 two-inch ropes. It was so large that it had to be made in four pieces. It might also be noted that 1,500 horsepower is transmitted through this one main sheave.

Why Don't You Make Pavers?

In most sections of the country this question is answered before it is asked, because the very nature of the clay precludes the manufacture of a vitrified paver that will stand the tests demanded. And because of this fact there are thousands of miles of new roads being built each year where brick is not even considered.

Take the case of California for example. That state is one of the leaders in the good roads movement, and during the past five years hundreds of miles of roads have been improved until that state is looked upon by motorists as an ideal place to tour. Yet brick for paving in California is most conspicuous for its absence, simply because the clays in the Golden State will not make a vitrified paver, and freight charges make it prohibitive to ship from the sections where pavers are made.



Shafts Furnished by Weller Manufacturing Company

There are clay-products manufacturers in California making a good quality of brick and tile suitable for building purposes only, at least as they are at present operating. And this is true of nearly every other section of the country, with the consequence that the phrase "Pave with Brick" is meaningless. But there is salvation for these manufacturers and it is found in the tested and proven "Aspha-Bric" process, which takes a common porous brick of any size or shape and positively makes it into a paver that will stand the hardest kind of abrasive wear.

Think of what this means to many hundreds of clay-products manufacturers. It means increased capacity because of the widening of their market with consequent increase in sales and profits. It means too the co-operation of the organization of John Baker, Jr., under whose auspices "Aspha-Bric" is marketed, and the help of traveling representatives whose efforts are directed to the promotion of the use of this product.

The cost of installation of the "Aspha-Bric" process is not excessive, and because of the resultant economies in manufacturing, coupled with increased capacity and

QUAKER CITY RUBBER CO. CROWN PHILADELPHIA
QUAKER CITY RUBBER CO. HERCULES PHILADELPHIA PA.
QUAKER CITY
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These reprints of timely articles published in former issues of "Brick and Clay Record" make excellent educational and advertising literature

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No. 1. "The Truth About the Concrete Roads of Wayne Co."—October 7th, 1913, issue. A 16-page folder, 9x12, in which Paul E. Green, M. E., tells the story of his complete investigation for the tax-payers of Highland Park, Ill., by whom he was sent to get the truth. Profusely illustrated. $2.50 per 100; $12.00 per 500; $20.00 per 1,000. **1200 Left**

No. 2. "Creosoted Block a Failure"—November 4th, 1913, issue. Chicago's experiences with wood block graphically told in pictures and type in the form of a 4-page insert at $2.00 per 100; $5.00 per 500; $8.50 per 1,000. **4100 Left**

No. 3. "Chicago Concrete Streets a Failure"—March 7th, 1914, issue. A similar story of Chicago's experience with concrete instead of wood block as above, in the same form and at the same price. A valuable piece of literature in concrete road competition. $2.00 per 100; $5.00 per 500; $8.50 per 1,000. **1000 Left**

No. 4. "Gov. Glynn (N. Y.) Urges Use of Brick Roads"—April 7th, 1914, issue. An 8-page folder in which Gov. Glynn, of New York, not only gives his views on the exclusive use of brick for the highways of New York, but backs them up with indisputable facts. $4.00 per 100; $15.00 per 500; $20.00 per 1,000. **2000 Left**

No. 5. "Economy in Brick Paved Roads"—June 2nd, 1914, issue. An 8-page folder, containing address delivered by Will P. Blair, Secretary of the National Paving Brick Manufacturers' Association, before the First Canadian and International Good Roads Congress, held in Montreal, P. Q., May 18-23, 1914. It is well illustrated with numerous views of brick paved roads; and these pictures are the best answers that can possibly be given the advocates of concrete and other "so-called" permanent pavements. Prices: 100 for $4.00; 500 for $15.00; 1,000 for $20.00. **2000 Left**

No. 6. "Safe Factory Construction"—August 1st, 1913, issue. An 8-page folder. Prices: 100 copies for $4.00; 500 for $15.00; 1,000 copies for $20.00. **1000 Left**

No. 7. "The Silo—How to Make It Permanent"—October 21st, 1913, issue. An 8-page reprint. Prices: 100 for $4.00; 500 for $15.00; 1,000 for $20.00. **2000 Left**

Send Your Order to

Brick and Clay Record
445 Plymouth Court Chicago

reduction of overhead percentage, the process is an investment that cannot help but bring good dividends.

Common building brick are being treated and tested at the office of John Baker, Jr., 540 Otis Building, Chicago, Ill., which is the only office of the company at present equipped to make "Aspha-Bric" tests, although sales offices are maintained in twelve other cities.

Kelly Trucks for Our Army on the Border

The wars in Europe have proved the worth and the vital necessity of the motor truck to the modern army. The United States Army has profited by European experience in this line, as is proven by the steady increase in the number of trucks used to take care of the soldiers in Mexico and on the border.

A recent example of this progressive spirit in our army is the purchase by the United States War Department of 231 trucks from the Kelly Springfield Motor Truck Company, of Springfield, Ohio — 165-3½ ton and 66-1½ ton chasses. The order is for seven motor truck companies, all fully equipped, each comprising 33 trucks.

The Kelly Springfield Company has undertaken an unusual thing in connection with this order. They are not only furnishing the trucks complete, bodies and chasses, but are agreeing to recruit and train the members of the companies, and turn only fully prepared and organized motor truck units, or companies of 33 trucks each, over to the Federal Government. As each company consists of a truck master and three assistants, a chief mechanic and two assistants, forty-four drivers and two cooks, it is readily seen what a job this will be.

This recruiting and training has been going on for some time now. The first company left Springfield, Ohio, on July 7th, on a special train for the border. F. B. Hutchinson, the Sales Manager of the Kelly Springfield Company, accompanied them to see that things get started right. The Government has established a permanent base for this big fleet of Kelly trucks at Nogales, Ariz. A complete service department, capable of making repairs of all kinds, has been established there. All seven companies will make this their base, and will operate in every direction from there.

The Trautwein Dryer & Engineering Company are equipping and constructing the new fire brick plant for the General Refractories Company at Joliet, Illinois. The dryers will have many new features in connection with their construction and operation, the waste heat being used from the kilns and all machinery being driven electrically.

The entire plant will be thoroughly modern and fireproof in every respect with a view to economical production.

The Claude Smith Company of Chicago has secured the contract for constructing a battery of eighteen kilns of special design at Joliet, Illinois, for the General Refractories Company.

This plant, the most modern of its kind in the country, will be ready for operation in a very short time judging from the number of men which are employed.

Link-Belt Company, Chicago, Illinois, are enlarging their malleable foundry at Indianapolis, in order to meet the increased demand for Link-Belt. The foundry extension will be a one-story building 70 ft. by 275 ft. with a wing 106 ft. by 140 ft. It will house their fifth melting furnace, and will provide space for 60 molders. Contracts have all been let.

Heraclio Martinez, box 712, Valparaiso, Chile, is very anxious to get in touch with manufacturers of clay-brick and roofing-tile machinery. This is his second request and manufacturers would do well to forward catalogs and full information promptly.

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

In Next Issue---

there will be another feast of good things, of articles and departments that have been planned with the spirit of being helpful.

¶ In turning over the pages of this, the issue which you now have in your hands, and reading the various headlines, we feel certain that you will be struck with the exceptional quality of its features.

¶ In line with this new policy which we have set, of giving our readers even greater values than we have in the past, the *SEPTEMBER 19 ISSUE* will be one that you will read from cover to cover.

¶ *"The Value of a Clay Deposit"* fills a big want in the industry. It is an article that contains information and formulae of exceptional value to the present or prospective plant owner when buying or selling clay lands, or when figuring the value of holdings.

¶ *"What Scientific Management Accomplishes for the Employer and the Employe"* is the second article by Dwight T. Farnham on this most important subject, and we feel that after you have gotten the first taste of the good "stuff" that this writer is handing out in his article appearing on another page of this issue, you will walk ten miles, if necessary, to secure a copy of his second contribution.

¶ Sometime ago, one of our readers wrote us stating that he was having considerable trouble in keeping brick-setters and that he wished to adopt the "tight-bolt" method of setting. "*'Tight-Bolt' Setting in Up-Draft Kilns*" by A. F. Greaves-Walker, describes this method which should become very popular because of the decreased amount of labor incident to its use.

¶ Some side-lights on Terre Haute, Ind., and Paris, Ill., where the paving-brick manufacturers are to gather in October, will also find a place in the *SEPTEMBER 19 ISSUE*, which will contain further information concerning this coming convention.

¶ Cost tables for *"Preparing"* and *"Making"* will also be given, as well as an explanation of their use.

If you are not getting *your own* copy, you had *better* subscribe *now*. The man who depends upon borrowing some-one's else copy will probably find the owner is "not finished reading it yet."

The EDITOR'S CORNER

Comment, Criticism and Advice on
Live Issues Affecting the Manufacture, Marketing and Manifold
Uses of Burned Clay Products

AS WAS ANNOUNCED in the August 15th issue, an article will be found on page 403 of this magazine which has for its title, "The Application of Scientific Management to Burning Clay."

The subject matter of this article may be new to a large number of our readers. We have no doubt but that it will be. If you find anything of mystery in this contribution, we would suggest that you can do nothing better than to follow the writings of the author of this first article—Dwight T. Farnham—which will appear in subsequent issues of "Brick and Clay Record." They will have a message for you, the like of which has not been brought to the industry in many a day.

But there are some few clayworkers who know something concerning scientific management and have given the subject a little study. To such readers we desire to say that in the articles referred to above, you will find set down in a clear and concise manner some of the results of scientific management as it is actually working out in the industry today.

The effects of scientific management are three-fold; that is, they affect three classes of citizens, namely, the manufacturer, the employe and the community.

For the manufacturer, scientific management cheapens the cost of production, eliminates labor troubles, increases output without increasing investment, improves quality of product and insures prompt deliveries.

For the employe, scientific management means higher pay, shorter hours, steady employment, less fatigue, better satisfaction in work and education leading to higher ideals.

To the community, scientific management is productive of better citizens, lower taxes, absence of strikes, a steady flow of money from without, fewer periods of hard times and a lower cost of living.

Sounds rather Utopian, but it can be proved to be a fact. Mr. Farnham's articles are not theoretical; they are based upon actual experience in clayworking, as well as other industries.

Forgetting the Fair?

THE SEASON for state and county fairs now being at hand, it brings to mind the unusual opportunities for promoting the sale of clay products that are offered at these annual events, which are not as widely appreciated as should be.

The past few years, however, have seen some notable exceptions to the general indifference with which most clayworkers have viewed these fairs as business producers, namely the live exhibit of the Permanent Building Society, which is composed of a handful of the most progressive manufacturers in Iowa, last year at Des Moines, and that of the Detroit Brick Manufacturers' and Dealers' Association which has installed a permanent rest room at its state fair grounds in Detroit, that is an effective advertisement for brick.

The Iowans who are members of the society above-mentioned have long since been convinced that their exhibit paid, and we have no doubt but that the Detroit brickmakers feel the same way about theirs.

This year the Detroiters have again opened their built-with-brick rest room to fair visitors and have provided an effective souvenir that will remind the recipient of brick for a long time. Altho we have heard nothing from the Hawkeye state, we presume that they are seeing to it that no one leaves the Iowa state fair without having been presented the opportunity of learning something concerning brick, hollow-tile, drain-tile and other commodities made from clay. The Nebraska Brick Manufacturers' Association has an exhibit at the state fair which opened on September 4 at Lincoln.

There will, no doubt, be a number of individual exhibitors at other state and county fairs. Our only regret is that we cannot chronicle the plans of more associated effort along the lines mentioned in the preceding paragraphs.

Car Shortage Again

THE ANNUAL PERIOD of extreme car shortage is upon us again and, barring a railroad strike, which, of course, would be productive of an unusual state of affairs insofar as transportation facilities are concerned, it looks very much as tho the lack of cars will be as keenly felt this autumn as in the previous year.

Following a custom that it has established in recent years, the Interstate Commerce Commission has again issued a bulletin to both the railroads and to shippers, urging co-operation between these two factors looking toward a minimizing of the suffering that industry will be compelled to undergo.

Reports are coming to us from many locations complaining of an inability to get a sufficient number of cars in which to ship brick and other burned clay materials, and stating that the car shortage which, for some months has not been troublesome, is now keenly felt.

Of course, clay products manufacturers should do all they possibly can to expedite the loading and unloading of cars so that this equipment may render the greatest service possible when it is most needed because of the heavy movements of grain which usually take place at this time.

However, co-operation should not stop with the manufacturers. The railroads should do their part. They are slow to purchase new cars, as a rule, because of the added investment, but they are hardly ever lethargic when it comes to locating new industries on their lines.

If service counts for anything, it should be most in evidence when it is most needed. Now is the time for your carrier to make good on its boast of service made when you were talking to its agent concerning a site near the right-of-way of that particular road.

Protect Yourself

ON FIRST THOUGHT, it might seem as tho there is little to be gained in reading an article setting forth a good method for selecting workmen, when the majority of plant superintendents are glad to get anything that looks like a man to help in filling up depleted ranks.

However, a little thought should convince any plant manager that there is something worth while in giving serious consideration to this most important subject for, if a man is hired without a medical examination or other test and is dangerously physically defective, the hiring of such a workman might cost the company considerable money in case of accident. Under the laws that obtain in many states there is little doubt but that the concern would be compelled to pay full compensation for injury or death, in the cause of which the accident might have played a small part.

"Haste Makes Waste," is an old saying in which there is still a good deal of truth. Putting on a new man because he is needed in a hurry, regardless of his physical qualifications, might turn out to be an expensive process in the end.

This is only one of several excellent points that are brought out in an article by W. G. D. Orr on "The Selection of Men," appearing on another page of this issue. Nearly every one connected with the paving-brick branch of the industry knows George Orr and his ability as a clay plant executive, which should be a sufficient recommendation to our readers that a careful perusal of what he has to say might prove highly profitable.

Valuable Information

THE general superintendent of a number of clay plants took the writer into his office not so very long ago and showed him a file of articles and other literature which pertained to his business, filed under various headings, which he has saved from fourteen years of reading. These clippings have been chosen as the most valuable of all of the literature on subjects of interest to this executive which have come to his notice in that period of time. Needless to say, a number of the articles which appear in this file have been published in "Brick and Clay Record."

It is also hardly necessary to say that this collection of information is becoming quite valuable. Just as a little demonstration of its worth, the owner said that a short time ago he was troubled with lamination at one of his plants. He dug down into his file of "dope" and succeeded in unearthing sufficient information to solve his problem.

Of course, we would prefer that you keep your copies of "Brick and Clay Record" intact, just as they are mailed to you and have them bound into volumes for future reference. We know of clayworkers who have followed this practice for a number of years and, as a result of it, now have a valuable collection of literature on clayworking.

However, if you are partial to a clipping system, such as the one above mentioned, you will find no trouble in the future in removing the technical and plant management articles and, perhaps, discarding the strictly news features after you have finished reading them, as care will be taken to see that no two articles are so arranged as to interfere with their being clipped and filed under separate headings.

Don't Be a Quitter

DO YOU THINK that you would work for thirty-five years to solve a problem on your plant? We are afraid that there are very few of us that would. Yet, there is a draintile manufacturer who is operating a plant within the boundaries of these United States who has done this very thing and has come out victorious.

Viewed strictly from an engineering standpoint, there may be considerable to be desired in the perfection of his accomplishments, but the pluck and unfaltering courage of the man cannot be denied nor should credit be withheld from him.

There is too little of patience and thoroness in our method of going after things in these days when the value of most operations is measured by the time it takes to bring about results. We forget that many of the comforts which we now enjoy in this twentieth century were the results of years of patient labor and toil in the face of almost insurmountable obstacles and barriers to success.

The telephone, the telegraph, wireless telegraphy, electricity, the sewing machine, the cotton gin, and a thousand other mechanical achievements, all have a history that tells of struggle, courage and stick-to-it-iveness that should teach us to acquire more of the much-talked-of German thoroness in the management of our business and the operation of our plants.

The men who will spend the best years of their life in doing one thing well, are very few.

That is why, perhaps, the industry does not have more labor-saving machinery at a time when it is needed.

"Making Good"

NOT WISHING to be classed with those who use "weasel words," to quote a certain ex-president with big teeth, we wish to call our readers' attention to the fact that in the August 15th issue of this magazine there appeared the first of a series of articles under the heading "Cost Accounting for the Clay Plant." An examination of the contents of this issue, will reveal the fact that the second article of this series is contained therein, in which will be found the first two tables of a complete system of cost keeping, the remainder of which will be published in order until the entire series is complete.

We have talked considerably about Cost in the past, and have urged its serious consideration by our readers, especially as an effective cure for price cutting. Words without deeds do not count for very much and so we now back up our former recommendations with something tangible in the way of a cost accounting system that will be found adaptable to most of our readers' plants.

If you have any questions to ask regarding it, we will be only too glad to answer them.

GLEANINGS *from the* MAIL BAG

Amid the sincere regrets of the faculty and the Board of Managers of the New York State School of Clayworking and Ceramics, Alfred, N. Y., Earle T. Montgomery, assistant director of the ceramic department, has resigned to seek his fortune in pastures new.

"While I enjoyed the work at the University," writes the ex-professor, "especially under the conditions which obtained, I have always been vitally interested in the purely practical side of ceramics. Under these circumstances, it is perhaps needless to say that I am glad to be again associated with an active and growing manufacturing organiztion, having the enviable reputation which the Jeffery-Dewitt Company (Detroit, Mich.) has earned for itself in the porcelain field. My position with this company is that of ceramic engineer and, among my other duties, I will have the direction of the company's research work."

Mr. Montgomery came to Alfred three years ago to accept a position as assistant professor of ceramics. Some time later he assumed the duties of assistant director, thus relieving Prof. Binns of some of the work of administration. He was graduated from Ohio State University in 1907, with the degree of "Engineer of Mines in Ceramics." He has had a wide and varied experience in technical ceramic work, and is the author of a number of technologic papers published by the Bureau of Standards, as well as many contributions to the Transactions of the American Ceramic Society and to technical and trade journals, especially in the clayworking field.

Mr. Montgomery will be succeeded at Alfred by J. B. Shaw of Pittsburgh, who is also a graduate of the Ohio State University in ceramic engineering, class of 1908. During the past eight years Mr. Shaw has been connected with a variety of ceramic enterprises, and recently held the position of ceramic engineer with the Pittsburgh Testing Laboratory.

Employes Frolic at Dealers' Picnic

It was "some" picnic that the employes of the Cleveland Builders' Supply Company and the Kelly Island Lime and Transportation Company, Cleveland, Ohio, held on Saturday, August 26. Business was suspended at noon in order that the one hundred and twenty-five or more members of the working forces of both concerns could be on hand on time. All motored out to the East Shore Country Club, where the festivities got under way immediately.

The first thing on the program was a baseball game in which the Cleveland Builders disposed of the Kelly Islanders to the tune of 13 to 5. J. E. Morrisey, sales-manager of the Builders, pitched for that team, and S. Lundberg was catcher. These positions were held by W. C. Roberts and B. G. Akers, respectively, for the Islanders.

Swimming, boating, tennis and dancing took up the remainder of the afternoon.

After the picnic spread, Prof. R. C. Griswold of the Sheldon School of Salesmanship, talked on character analysis. Motion pictures showing the manufacture and application of lime were exhibited by the Kelly Island Company, Mr. Roberts explaining the pictures.

Prizes for winners in the different events were awarded. The feature event, it seems, was the standing broad grin for the fellow and the girl who sported the broadest grins. The winners were Miss Edna Bergen and A. J. Earl of the Kelly Island Lime and Transportation Co.

Equally amusing was the tie and thimble race. The girl ties the necktie and the man threads a needle, and each runs fifty yards. Miss Emma Buck and Sandy McMorris won this event. They were also employes of the Kelly Island Lime and Transportation Company, which contingent won most of the field events.

Detroit Workmen Receive Another Increase

Detroit brick manufacturers have again increased the wages of all workmen on their yards, according to an announcement received from William B. Wreford, manager of the Detroit Brick Manufacturers' and Dealers' Association. This time the increase amounts to forty cents per day per man, regardless of the nature of his duties, making a total of ninety cents a day that the wages of every man employed on the yards have been raised.

Outside of the Ford Company's employes, who are receiving a minimum of five dollars per day, the brick yard workers are the highest paid wage earners in "The City Where Life is Worth Living," receiving from three dollars to five and one-half per day. The wage increase, writes Mr. Wreford, has necessitated an increase in the price of common-brick to $9.50 and $10.50 per thousand. There is no let-up in the demand and the Detroit yards will be required to work day and night all winter to prepare for the next spring rush.

Brick Paving Heavy in Kansas

That the majority of the paving being done by Kansas cities and towns is of brick, there can be little doubt when one reads the reports coming from municipalities in that state. In the city of Hutchinson alone, which boasts a population of 16,364, 83,000 square yards of brick paving are at present either under construction or under contract, while plans for paving four more streets, that will require a large quantity of brick, are being made.

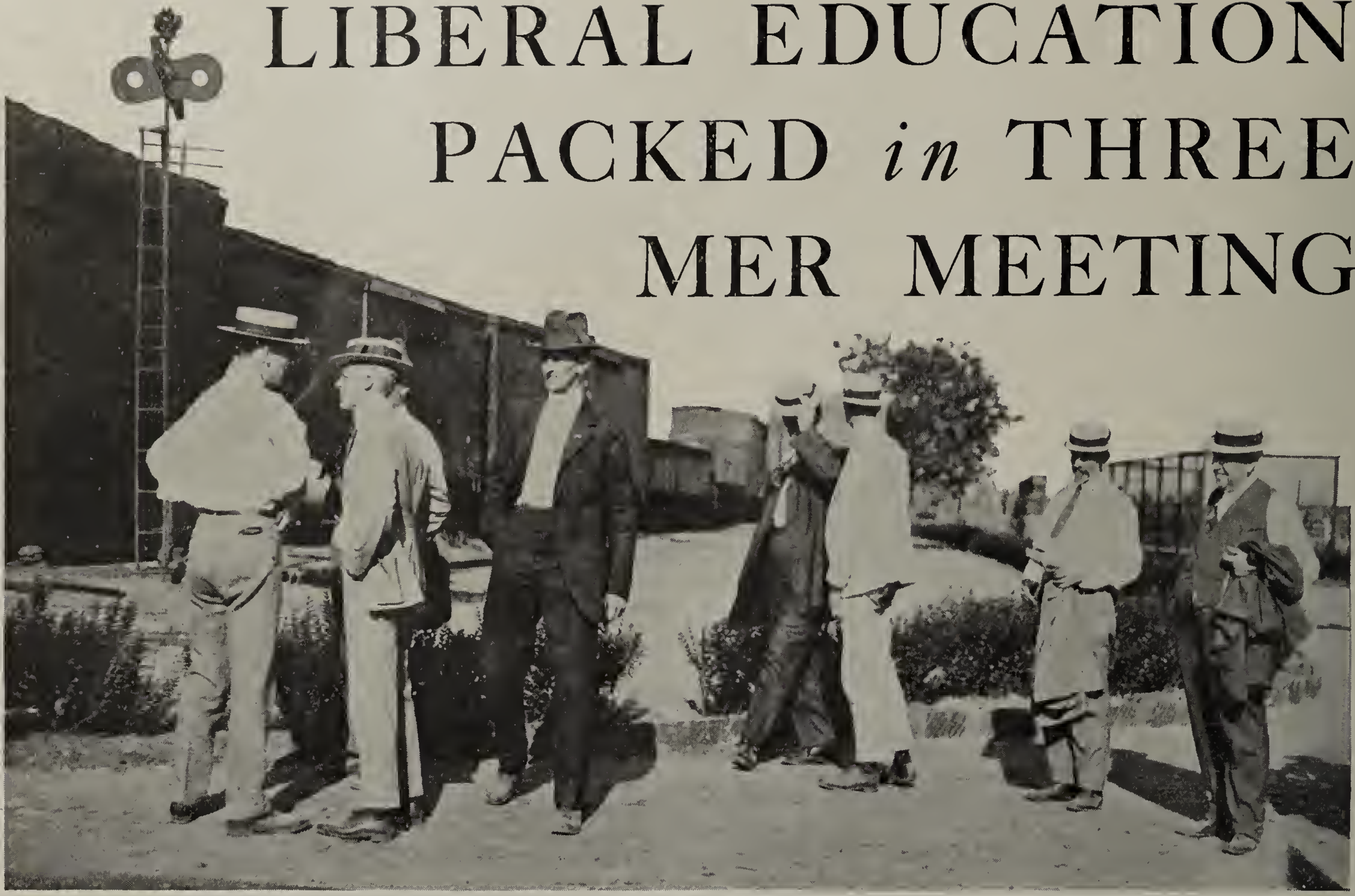
However, Hutchinson is doing no more in the line of brick paving than are many towns much smaller. Lyons, for example, has let a contract calling for 87,000 yards, of which 30,000 yards have already been completed. Salina paved 65,000 yards last fall and 33,000 yards more this year. Larned has let contracts for 80,000 yards, all of which are to be of brick.

Other towns in Kansas that have contracted for brick paving to be laid this year, together with the number of yards, are: Wichita 40,500, Topeka 47,000, Clay Center 41,000, Beloit 50,000, Council Grove 30,000, Garnet 30,000, Erie 32,000, Pittsburg 40,000, Coffeyville 20,000, Dodge City 12,000, Cherryvale 15,000, Parsons 22,000, Fort Scott 20,000, Kansas City 30,000, Independence 35,000, Lawrence 17,000, Fredonia 25,000, Chanute 30,000, Olathe 7,000, Ottawa 40,000, Minneapolis 16,000, and Atchison 10,000 yards.

Epidemic Changes Refractories Meeting

Not caring to take any chances with the epidemic of infantile paralysis now raging in New York City, the Refractories Manufacturers' Association has changed the location of its quarterly meeting scheduled for September 13 to 15, from that city to Washington, D. C. The sessions will be held in the Willard Hotel.

LIBERAL EDUCATION PACKED *in* THREE MER MEETING



Waiting for a Freight to Pass in Front of the Laclede-Christy Clay Products Company's Office. R. D. Hatton, General Manager of the Company, is the Figure at the Extreme Left, While Lemon Parker Brings Up Smiling in the Rear at the Extreme Right of the Picture, with H. A. Wheeler, Official Pilot of the Party, at His Right.

IT IS VERY EVIDENT, from what transpired in St. Louis from Wednesday, August 23rd, to Friday the 25th, that Prof. Wheeler must have a strong "drag" with the local weather man, for the "Mound City," with all of the abandon of a school boy about to enter upon his summer vacation, cast precedent to the winds and actually served the visiting ceramists with a cool and delightful temperature. Just how it was done and what wires it was necessary for the venerable leader to pull, no one seems to know, but the fact remains that the results were there, taking the form of weather that was more characteristic of early autumn, than late August.

About forty members and guests responded to the call sent out some time previous by the secretary of the society—Edward Orton, Jr.—Wednesday morning, finding the lobby of the Washington Hotel at Delmar and Kingshighway well filled with the highbrows of the clayworking industry. In the absence of Prof. Orton, H. A. Wheeler—erstwhile teacher in one of the local colleges and a veteran member of the society—took charge of the meeting, carrying the visitors thru the program with a dispatch that lent zest to the occasion.

GLASS WORKS AND TANK BLOCK PLANT VISITED

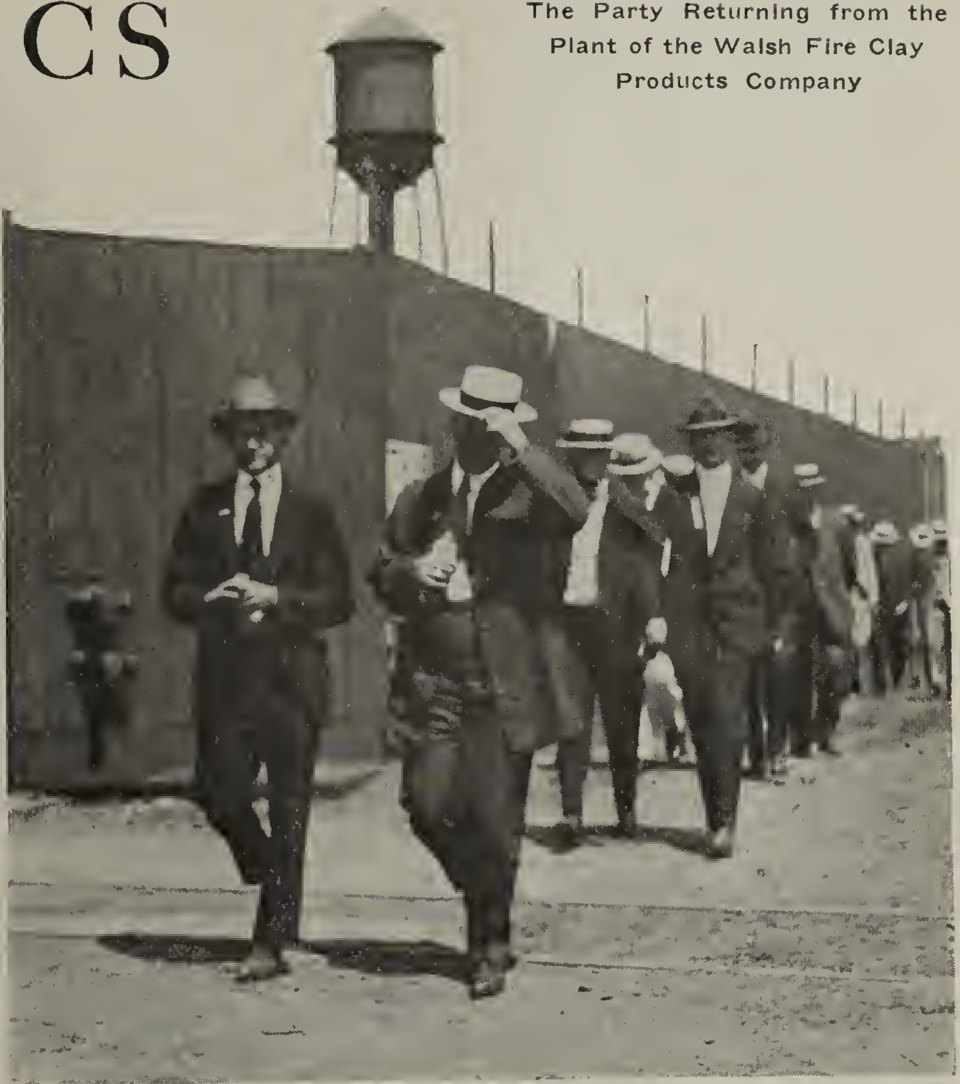
As has been the custom in bygone years, the meeting was largely one of plant inspection, the factories, of course, being limited to the ceramic industries. The first of these was the works of the Mississippi Glass Company and its companion plant, the Walsh Fire Clay Products Company, both of which are very near the banks of the "Father of Waters." Leaving the hotel in automobiles, the ceramists first visited the plant of the former concern where they saw both figured and wire glass made. Thru the courtesy of E. Rollison, assistant manager, and George Aurien, superintendent, the visitors were taken thru the plant and explained the mysteries of glass manufacture. The product of the Mississippi Glass Company is made on large steel tables, weighing approximately twenty-nine tons, upon which the molten glass is poured from furnaces that have a temperature around three thousand degrees Fahr. A system of overhead rails from which are suspended iron ladles forms the means of transportation for getting the glass to each table, where it is rolled out into a long sheet, much the same as a baker rolls out pie crust. While the hot glass is resting on these tables a workman passes what is called an iron "sword" underneath the sheet to prevent its sticking to the table when being pulled into the annealing ovens. So quickly is this operation completed, that while you are blinking your eyes, the glass is brought from the furnace, rolled out and placed in the ovens. Glass must be handled rapidly and not allowed to cool before reaching the ovens where it is cooled gradually to avoid shivering.

ANNEALING OVENS WELL EQUIPPED WITH PYROMETERS

The party listened with great interest while the conductors explained the elaborate and intricate system of pyrometers which is used in connection with these annealing ovens. No expense has been spared in bringing this equipment up to a high state of perfection in order that the operator may know with a fair degree of accuracy just what temperatures are prevailing at all times. These ovens are usually kept at a temperature of from twelve to sixteen hundred degrees Fahr. from the tables, from which they are gradually lowered. The figured glass remains in the ovens fifty minutes, this period being extended in the case of wire glass to about ninety minutes.

in CERAMICS
DAYS *at* SUM-
of SOCIETY

Cool Weather and Warm Hospitality of Local Committee, Together With Large Variety of Model Clay Plants, Make Nineteen Sixteen Summer Gathering of the American Ceramic Society at St. Louis, Mo. and Alton, Ill., One Long to be Remembered


The Party Returning from the Plant of the Walsh Fire Clay Products Company

Another Preparedness Parade; However, Not for a Bigger Army or Navy, but for a More Complete Knowledge of Clayworking Methods. There is Little Doubt but That Those Who Attended the Meeting Returned Home Better Prepared to Meet the Problems of Tomorrow

The production of the Mississippi Glass Company reaches a total of 56,000 square feet of glass in twenty hours, two shifts of ten hours each being worked to maintain this capacity. The ingredients which enter into the product are silica sand, ninety-eight per cent. pure, carbonate of lime, soda ash, nitrate of soda, sulphate of soda and manganese.

Notebooks and Pencils Were Very Much in Evidence Wherever the Ceramists Went. The Memory is a Poor Staff to Lean Upon for an Accurate Record of Figures and Details

It is interesting to note that from one hundred and fifty tons of broken glass and raw materials, only eighty tons of molten glass are obtained, while this is further reduced thru imperfections, breakage and cutting, so that when the glass is placed in the warehouse, only about one-third of the last mentioned tonnage is secured.

HOW GLASS FURNACE FLOATS ARE MADE

From the glass works, the party walked down the railroad tracks to the plant of the Walsh Fire Clay Products Company which, until a year or so ago, was a part of the Mississippi Glass Company. There, under the able direction of Charles W. Parker, manager of the plant, the visitors were led thru the processes followed in the manufacture of glass plant refractories. Among the many shapes was one that was particularly interesting. It is what is known as a float, its chief function being to separate the cooler or receiving end of a glass furnace from the hot or discharging end. These floats rest on the top of the molten glass and are made of a high grade of fire-clay. Being very large and very heavy, they are anything but easy to handle. After being molded and great care taken in drying, they are placed in a kiln and burned for four days, following which, while yet immature and hot, they are quickly transported on an iron carriage to the glass furnace and "launched" into the hot liquid where they serve in the capacity of a bridge, as has already been described.

This plant has a daily capacity of 40,000 nine-inch equivalents. Most of the brick and shapes are made by piece work, a task of 4,500 being required of a gang consisting of four men. There are twelve kilns which have a capacity of from forty to ninety thousand brick. A noteworthy feature of these kilns was that they were arranged in groups around one stack, as many as six being included in a group. This is a rapidly growing practice and one which many plant superintendents have found to be of considerable value in increasing the draft during the early stages of the burn.

This same concern has a larger plant than the one found at St. Louis, at Vandalia, Mo., where 75,000 nine-inch equivalents are turned out every day.

THE HOME OF "HY-TEX"

Aching voids in the region of the belt informed the ceramists that the noon hour was at hand and so, after a strenuous morning's work, the party motored to a restaurant in the business section of the city where the inner man was satisfied.

Immediately upon leaving the restaurant, the party visited the wonderful display rooms of the Hydraulic-Press Brick Company which are among the finest, if not the finest exhibit of face building brick in the country. Here rough-textures, smooth brick and enamels are laid up in panels and decorative designs of an endless variety.

Having seen the beauty of the finished product, the party turned to the factories at which these brick are made. The "Hy-tex" company has seven plants in St. Louis, three of these being devoted to the manufacture of common-brick, one to stock red brick, one to pavers, one to enamels and one to rough-textured face-brick primarily. At one of the common-brick plants—No. 5—the biscuit enamels are also made.

The No. 3 plant at Manchester avenue and Kingshighway was the first one visited. Here the party was met by P. S. Trowbridge, general superintendent, who was armed with a megaphone and who led the party thru this and three other plants in a manner that brought forth considerable praise for its efficiency and thoroness. No. 3 is a combination dry-press and stiff-mud plant. It is equipped to manufacture rough-textured face-brick, paving-brick, hollow-tile and commons. It has eight rectangular, down-draft kilns forty feet in length and two double kilns which are eighty feet long. The former have a capacity of between ninety and one hundred thousand, and the latter about 180,000 brick. The capacity of the plant is rated at about 60,000 face-brick daily.

ONLY UNUSUAL FEATURES ARE EMPHASIZED

It is desired to call our readers' attention at this point to the fact that, as is usual where a large number of plants are inspected, many of the methods followed and equipment used are conventional and need not be described in detail. Therefore, in order that the chaff may be eliminated and the kernels served for consumption, we will describe only in detail those features which are unusual in narrating the rest of our story, leaving the conventionalities to be covered in a general manner.

J. S. McCann, Superintendent of the Streator (Ill.) Clay Manufacturing Company, and G. L. Rogers of the American Refractories Company, Danville, Ill., the Pair to the Left, Discussing the Possibilities of a Railroad Strike. The Couple Behind Them Are Exchanging Opinions Regarding the Well Managed Plants of the Evens and Howard Company

From No. 3 the party proceeded to the No. 11 plant of the Hydraulic-Press Brick Company. This was by far the most interesting plant to the ceramists, one which has many points well worth noting. With an unusually large capacity—one hundred thousand per day—this plant is devoted to the manufacture of paving-brick, both vertical fiber and wire-cut-lug. The raw material—a red shale—is brought in from Malcolm, Mo., in company cars. The visitors were informed that the

LOOKING PLEASANT FOR THE CAMERA MAN IS AN IMPORTANT PART OF NEARLY EVERY GATHERING brick made from this shale test from eighteen to twenty per cent. in the rattler and that every kiln and every carload of brick is tested so that the management knows at all time just where it stands with regard to the quality of its product.

This is Not One of the Germans' Forty-two Centimeter Guns, but it is a Forty-two Inch Sewer-pipe That Speaks for Itself

Upon the arrival of cars loaded with shale, of which ten or eleven are used every day at this plant, they are "spotted" over the receiving bins from which the shale passes to four crushers of an unusually efficient type, which are connected with an equal number of dry-pans. The usual methods of preparation and molding are then followed. This plant has two large paving brick machines and one small machine upon which rough-textured face-brick are made. A thirteen-tunnel waste heat drier is used, to which is attached a twenty-foot induction fan. This drier has a capacity of 165,000 brick.

CONVEYOR EXPEDITES TURNING OVER OF KILNS

From the drier the brick are set into the kilns, of which there are sixteen rectangular down-drafts sixty feet long with a capacity of 100,000 each. The set task at this plant is the drawing of one kiln every day and, in order to accompish this with only sixteen kilns in operation, it has been found necessary to install a mechanical conveyor which transports the finished product from the kiln to the waiting freight cars. This system consists of a complete set of overhead single rails extending along the outside of the kilns to the loading platform and from thence to the power house—which is shown in an accompanying illustration—and back again to the kilns, making an endless chain. This endless chain of suspended carriers is interchangeable and may be moved from one kiln to another by disconnecting the chain and hanging six supports from roof of the next kiln to be drawn. Then by pulling the chain-connected carriers over to the proper position by means of hooks in the hands of workmen, connecting up the chain and turning on the power, the apparatus is ready for use. The time consumed in changing the conveyor system over from one kiln to another averages about thirty minutes. Steam power is used, the conveyor running at a speed of about forty-two carriers per minute by a given point. This and the company's plant at Kansas City, Mo., are the only two which have a system of the type above described. While the system does not save any labor, still without it the plant would not be able to maintain its capacity of one hundred thousand pavers a day. Thru its aid, it is possible to keep the drawing gang concentrated upon its work, a result that would be impossible if "wheelers" were used.

POWER PLANT A MODEL OF EFFICIENCY

Another feature of this factory that is worthy of comment is its power plant where the energy from a 460-h. p. engine is transmitted by means of a main rope drive to the shafting. In the boiler room there are six tubular boilers of 70-h. p. each, being fired with mechanical stokers which save two men.

From No. 11 the party proceeded to the enamel brick plant where English, Normans, Romans, standard size and various shapes are turned out at the rate of 20,000 standard size brick or equivalent per day. There are nine up-drafts and two muffle kilns at this plant for burning the brick, the biscuit ware for which is made at the No. 5 plant visited immediately thereafter.

The dipping of the enamels was watched with considerable interest by the visitors, one of which remarked that the flies seemed to enjoy soiling their feet on the freshly coated surfaces as the brick rode along on a belt conveyor, and speculated as to what was the cause of this behavior.

OF THOSE INTERESTED IN CLAYWORKING. NOT SUCH A BAD LOOKING CROWD, WHAT?

"Somewhat like the professional mourner," suggested a fellow ceramist, "they go for the ride."

P. S. Trowbridge, General Superintendent, to the Right, and G. J. Langenecker, Foreman of Plant No. 11, Hydraulic-Press Brick Company, Looking Pleasant

At No. 5 the party saw dry-press fire-clay brick being made which form a body for the enamels. This plant also manufactures a high-grade dry-press common brick which sells for about eleven dollars per thousand and smooth face-brick, both iron-spots and otherwise.

BONUS INCREASES CAPACITY NEARLY ONE-FIFTH

The set task and a reward for exceeding it, is something that has been given considerable thought and attention on the part of those in charge of the Hydraulic-Press Brick Company's plants. In determining just what is a fair day's work for each and every department, the stop watch has been freely used, with the result that, after three years of working under the system, plant No. 11 has increased its capacity from eighty-five thousand to one hundred thousand—its present production. The men are given one per cent. per thousand for every thousand over a certain mark, depending upon the character of the product, this being paid every month on the 10th. Attention was called to the fact that the men operating No. 7 press at the No. 5 plant averaged a bonus close to fifteen per cent. of their wages. While the Hydraulic Company has not had as great a success with its bonus system as might be desired, still a step has been taken in the right direction and, when fully appreciated by all of the employes, will result in better satisfied workmen and lower costs.

The inspection of the Hydraulic-Press Brick Company's plants occupied the entire afternoon of the twenty-third, following which the party returned to the hotel from which it proceeded to one of the popular dining gardens in St. Louis where the visitors enjoyed a good meal in the open air. As if conspiring against the peaceful rest of the ceramists, even after dinner, the committee conducted the party over to the Park theater, which adjoined the garden, for an evening's entertainment.

WHERE SCIENTIFIC MANAGEMENT HOLDS SWAY

A visit to the plant of the Highland Fire Clay Company was scheduled for the first thing Thursday morning, but owing to the fact that certain alterations and repairs were being made at that plant and consequently being shut down, the ceramists omitted this stop from their itinerary.

Accordingly, about nine o'clock, when the party had assembled in the lobby of the Washington Hotel, a start was made for the sewer-pipe and fire-brick plants of the Evens and Howard Company, where a recent installation of the widely discussed system of scientific management has been made. The visitors were ushered into the company offices where they were introduced to R. S. Rhoades, vice-president and general manager of the company, W. J. Volz, general superintendent, and George D. Morris superintendent of the sewer-pipe plant, who conducted them thru the two plants of the company, explaining the various features.

The sewer-pipe and the fire-brick plants have a total of thirty-eight round, down-draft kilns, some of which are of the steel shell type and have given very satisfactory service, which is evidenced by the fact that the company is adding to its number of this class of kiln. At the sewer-pipe plant an interesting fact was noticed. It was that the kilns, instead of being perfectly round, have an oval form which permits the placing of one more kiln in the yard than would be possible with circular kilns.

The Power Station for the Conveyor System Used in Drawing Kilns at Plant No. 11 of the Hydraulic-Press Brick Company, Which is Described in the Report of the Meeting

The sewer-pipe plant is a two-press factory with a daily capacity of two hundred and fifty tons. Pipe up to forty-two inches in diameter are made from an unusually plastic shale which comes from a point in St. Louis county. Segmental tile are also made at this plant for sewers up to eighty inches in diameter.

In setting the large sizes of pipe, for which there seems to be a heavy demand in the West, a compressed air crane is employed. The parts of this crane are let down thru a hole in the top of the crown of the kiln and, when the setting has been finished, is removed in the same manner. The convenience and economy of this piece of equipment can be readily appreciated when it is remembered that a forty-two-inch pipe weighs about fifteen hundred pounds and is very hard to handle without breakage. It seems that in a great many of the western cities, those in charge of the sewer work prefer these large pipe to either a brick or concrete sewer—this in the face of the fact that a brick sewer can be built for about $2.50 per foot while pipe will run about $4 for the same length.

The fire-brick factory is a twin of the sewer-pipe plant. It has a capacity of about 75,000 nine-inch equivalents per day, which are made from Cheltenham fire-clay which is mixed with a flint clay.

WORKMEN ARE INDUSTRIOUS AND CONTENTED

Bulletin boards placed at various locations in the plants of this company attracted unusual attention on the part of the visitors. In the machine room, for instance, of the sewer-pipe plant a bulletin informed them of the set task for the press gang and the previous days' performance. It was noted that the men in this department were running all the way from ninety-eight per cent. efficient to well in excess of one hundred per cent., and were, therefore, earning a bonus every day. Since this concern has taken up scientific management it has had no trouble whatever with its workmen, all of whom seem industrious and contented with their task. This is in sharp contrast to conditions at other plants thruout the country, where wages much in advance of those every paid before are now being offered to secure the necessary help, and even these high wages have gone begging in a great many cases. Some plants are paying fare in from a radius of two hundred miles for wheelers.

ST. LOUIS TERRA COTTA COMPANY NEXT STOP

From witnessing the manufacture of material which is thoroly practical but which offers little appeal to the aesthetic senses, the party left the birth place of products that are buried in the soil and are used in the construction of blast furnaces, to proceed to where works of art were being produced. Thru the courtesy of R. F. Grady, manager, Gale R. Truman, chemist, and Paul Herrold, superintendent, the ceramists were shown around the plant of the St. Louis Terra Cotta Company, which has seven kilns and a good product. As the visitors passed thru the various departments of the plant it was noticed that the company produced a large quantity of religious statuary, more, perhaps, than any other plant in the country. Another interesting feature was the inspection of the various pieces that are to be used in a gold dome to decorate the Franklin National Bank of St. Louis which is now in the course of construction. Leaves, thirteen different sizes and covered with a gold glaze, are to be used in building this dome of everlasting burned clay, which is to be sixteen feet in diameter and six feet high. Of course the business of the company is mostly in coping, sills, and similar shapes, but it carries a limited stock of terra cotta store fronts.

H. Forester of Cleveland, Ohio, Telling George Morris, Superintendent of Works No. 1 and 2, Evens and Howard Company, How to Burn a Kiln

LUNCH IN LACLEDE-CHRISTY DINING ROOM

From the St. Louis Terra Cotta Company's plant the party walked down Manchester avenue to the Laclede-Christy Clay Products Company's dining room where an appetizing luncheon was served. This dining room is maintained by the company for the convenience of its executives and large office force, meals being served for a nominal sum. Some of the visitors were informed that it cost one thousand dollars last year to keep this dining room in operation, over and above its revenue.

After lunch the party crossed the street and entered the office of the Laclede-Christy Company, which has three plants at this point, the No. 1 plant making fire-brick, No. 2 sewer-pipe and hollow-tile, and No. 3, hollow-tile and fire-brick. In addition to these the company operates what is known as the old Christy plant which is some distance further to the south of the city, where a fine laboratory is maintained for clay washing.

The Laclede-Christy plants were especially interesting to the ceramists for many reasons, principal among these being that they showed evidence of some engineering thought having been expended in their construction and layout.

I. J. Kirk, President and General Manager, Universal Sanitary Manufacturing Company, New Castle, Pa., Surrounded by an Interested Group of Ceramists to Whom He is Describing the Operation of His Tunnel Kiln for Burning Pottery

The No. 3 plant is particularly noteworthy because of this fact. This is a comparatively new factory, built of fireproof construction thruout and electrically driven. Hollow-tile, which is a product of the company, found a large place in the building of this plant which is thoroly modern in every respect. This plant was making nine-inch dry-press fire-brick at the rate of 125,000 per day. The company employs about four hundred men in St.Louis when it is operating to capacity.

PARTY SPLIT UP TO COVER DAY'S PROGRAM

When the inspection of the Laclede-Christy plants was concluded, it was suggested that the party be broken up into divisions according to the plants which each individual desired to visit, as it would be impossible to cover the ground mapped out if the entire party was to be taken to every plant.

Accordingly, one division signified its intention of visiting the Winkle Terra Cotta Company's plant where they were shown thru by Andrew Winkle and Andrew Hewitt.

Another group went to the old Christy plant where they inspected the renowned laboratories at that point.

Those who were left behind motored to the double plant of the Blackmer and Post Sewer Pipe Company, where all sizes of pipe are made, but particularly the larger ones. Here the ceramists stopped to watch a press gang handle forty-two-inch pipe. As the pipe issues from the die of the press and is cut, it is placed on a pallet which rests on a movable carriage. This carriage runs on rails which are depressed below the level of the floor. After moving a distance of about fifteen feet, the carriage is brought to a stop while a wooden core is inserted in the pipe to prevent its breaking down while being turned over. A power-driven rocker then picks up the pipe and turns it over with the bell end up, following which a small hand pulley is used to lift out the wooden core. The pipe are then picked up by an adjustable truck and wheeled away. These pipe are handled from the drying floors to the kilns by means of elevators and a specially constructed derrick, which also is used in loading cars.

GUESTS OF LEMON PARKER—VETERAN CLAYWORKER

The same party that visited Blackmer and Post continued its journey to the Parker-Russel Mining and Manufacturing Company where the ceramists witnessed the making of gas retorts and accessories, also fire-brick and fire-clay shapes. This concern makes a specialty of refractory products for gas plants and, having been at the business so long, has reduced the various steps in the process to a science. The Parker-Russel Company has little successful competition in this line of wares and claims to make a product par excellence.

An interesting character at this plant was the man who has developed the system of moving the retorts and fire-brick by means of electric storage battery trucks. A section of retort, which is somewhere in the neighborhood of sixteen feet in length and hollow inside, is not an easy piece to handle successfully. Yet this mechanic has perfected an electric transfer truck which moves these pieces from place to place without the slightest difficulty, picking them up in a vertical position and putting them down at another point with almost unbelievable rapidity. This concern has three types of electric transfer trucks which operate without rails and are rubber tired. It will be remembered that a paper was read by Lemon Parker describing these trucks and calling attention to their many advantages at the National Brick Manufacturers' Association convention held in Cleveland last February.

DINE AT PARK OWNED BY A CLAYWORKER

Hot, dusty and tired, the ceramists finished the inspection of the Parker-Russel plant and the others to which the vari-

(*Continued on Page* 442.)

POTTER GAINS SUCCESS *by* MASTERING LABOR PROBLEM

With the building of large additions to the plant of the Fords Porcelain Works, Perth Amboy, N. J., improvements which will double the output of the company, that branch of the clayworking industry in the Raritan river section has taken a big step forward. Ten years ago Abel Hanson, president of the concern, started in business with a limited capital, but a splendid reputation for honest dealing and years of experience in the various branches of manufacturing clay products. Today, he owns one of the largest factories in the East devoted to the manufacture of porcelain tubs, sinks and art pottery.

ABEL HANSON
President, Fords Porcelain Works

At the Panama-Pacific International Exposition the Fords Porcelain Works came in for some justly deserved prominence. Mr. Hanson's wares were awarded the gold medal and first prize ribbon in their class—a most commendable showing for any manufacturer in one exhibit.

Mr. Hanson attributes his success to excellent labor conditions. While porcelain plants in other sections of the country have been troubled by strikes and discontent among the workers, curtailing, in many instances, operations, the Fords plant has been progressing rapidly without interruption. Mr. Hanson says that the increased demand for his wares that is now being enjoyed, is due to the fact that many of the larger plants have been handicapped by labor troubles.

Mr. Hanson takes a keen interest in the welfare of his men and has installed many safety devices. Coming up from the ranks of the laboring man, he knows what it means to do a hard day's work at the bench or the kilns. He has been successful, not because he enjoyed an unusually attractive market or has had favorable shipping rates or conditions, but because he has surrounded himself with the best mechanics and improved equipment, manufacturing the articles that people want and giving them the best ware. He now has offices in New York, Chicago, Boston and San Francisco, and representatives in the leading cities of Europe.

THE APPLICATION *of* SCIENTIFIC MANAGEMENT *to* BURNING CLAY

Studying a Much Discussed and Important Process in the Manufacture of Clay Products from a New Angle, Looking Toward General Efficiency

By Dwight T. Farnham

Editor's Note: It is with considerable pleasure and satisfaction that we introduce this new contributor—Dwight Thompson Farnham—to the readers of "Brick and Clay Record," particularly so because of his enviable record in clayworking.

He is a graduate of Phillips Andover, Class of 1900; of Yale University in 1904. Served as assistant to the secretary, Clermont (Pa.) Sewer Pipe Company in 1905; was superintendent of the Shawmut (Pa.) Manufacturing Company in 1906. Mr. Farnham has served as superintendent of the majority of the Denny-Renton Clay and Coal Company's plant on the Pacific Coast, being at the Van Asselt's plant in 1907, Taylor plant in 1908, Renton plant in 1909, Terra Cotta plant in 1910. Was general superintendent of the company's six factories, mines, stores, etc., in 1911 and assistant general manager, acting general manager, etc., from 1911 to 1914.

Mr. Farnham was investigating industrial conditions in England during the early part of the European War, in the latter part of 1914 and has since been engaged in industrial and efficiency engineering as a member of the staff of the Emerson Company on railroad, steel mill, automobile, printing, lithographing and clay manufacturing establishments.

He has written a number of papers for the American Society of Mining Engineers, American Ceramic Society, of which he was vice-president during the term 1913-14, the "Engineering Magazine, "System" and the "New York Efficiency Society Bulletin."

AN ARTICLE, describing the principles which underlie Scientific Management and giving a brief description of the application of Efficiency to industry in general, was contained in the May 16 issue of "Brick and Clay Record." It is the purpose of this article to show how these principles can be, and have been, applied to the burning of sewer-pipe, brick, and other clay wares, and to indicate the results in the form of increased profits which can be obtained by so doing.

A couple of years ago, the president of one of the largest clay manufacturing concerns in the country was asked what he would establish as an ideal if he were required to set a standard of attainment for his head burner and assistants. His reply, without ever batting an eye, was: "One hundred per cent. No. 1 ware, with no labor and no fuel!" There is no question that high ideals are commendable in a man, *but the millennium isn't here yet—at least not around the usual brick yard.* The determination of attainable ideals or standards, however, and the inducement of the burning crew to attain these standards, expresses, in a few words, the application of Scientific Management to burning.

Just what constitutes a reasonable standard in each case must be determined by local conditions—the kind of clay, the sort of coal—even the climate and the type of labor play an important part in arriving at a conclusion as to what results may be reasonably expected, ultimately. The principles in every case are the same, and the ideal is the same *—the highest percentage of first class ware, with the least coal and with the least labor.* This goal must be kept continually in mind and every step taken must be a step in that direction. In that way, and in that way only, can the largest possible dividend be earned for the stockholders who invest their money and who have a right to expect every man from the water-boy to the president of the company to do his utmost to guard against loss.

STANDARIZED CONDITIONS

The first step is to standardize conditions. To a great many owners of clay plants "kilns is kilns" in much the same way as "pigs were pigs" to the Irish freight agent in the story and, if they only knew it, the results of failing to differentiate are quite as serious to them and to their stockholders, as the results were in a personal way to that unfortunate Hibernian who asserted that the guinea pig, and the variety which furnishes us with pork chops and ham, were one and the same, as far as he was concerned.

A great many clay plants, especially those constructed a number of years ago, have been the training school for every clayworker out of a job who happened along and who had nerve enough to call himself a superintendent. As a result every kiln and every kiln bottom, in a good many plants, is different. Each successive foreman or superintendent has tried out some of his pet ideas until every kiln burns differently from every other kiln and turns out very different results both in percentages and in coal consumption. Obviously, there can be only one *best* result. Money has been lost and

DWIGHT T. FARNHAM

is being lost right along on every other kiln which uses more coal or turns out less No. 1 ware than the best kiln.

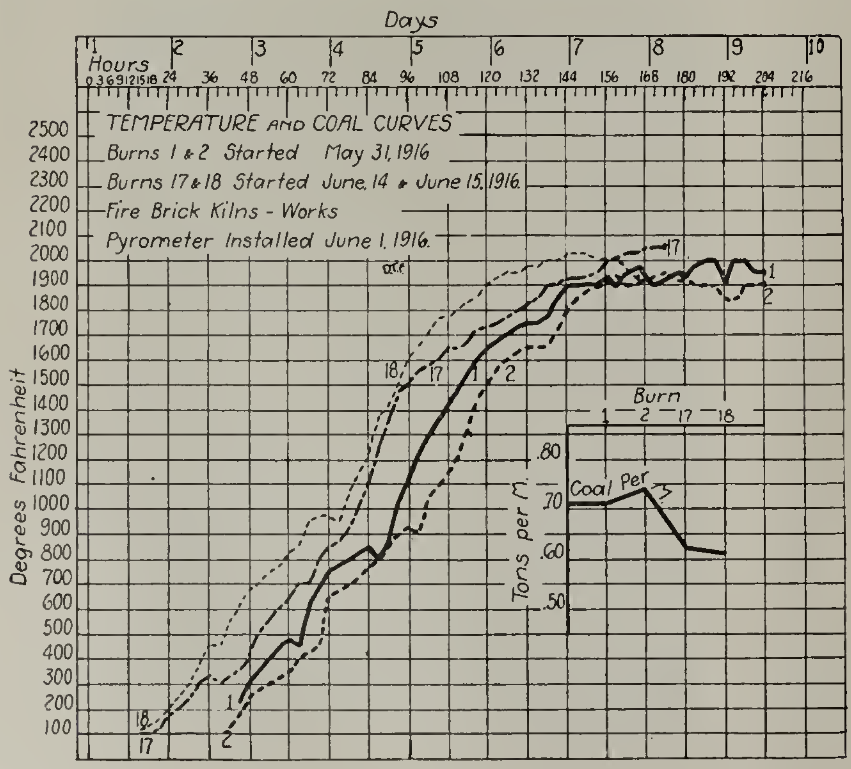
The ideal way to remedy this would be to tear out every kiln bottom and put in a standard bottom designed by an expert. This would undoubtedly give uniform results and all the kilns would be "best kilns." Unfortunately, most owners of clay plants are not in the millionaire class and, if they are, they are not inclined to incur an expenditure of five or six hundred dollars a kiln merely on the recommendation of an engineer the first time they meet him. Standardized conditions, then, must resolve themselves at first into a personal expedition into the not-too-cool depths which lie beneath each kiln.

The personal inspection of each kiln bottom is not pleasant, but it is generally productive of results. These results, in the writer's experience, have varied anywhere from finding a long abandoned iron wheel barrow in the main flue, where some worthy laborer had been loading it when the whistle blew, to encountering a tepid stream of water thru which it was necessary to splash on the hands and knees for thirty or forty feet. Neither one of these phenomena were good for the draft nor for the percentage of first-grade brick.

EXPERT NOW READY TO PROCEED

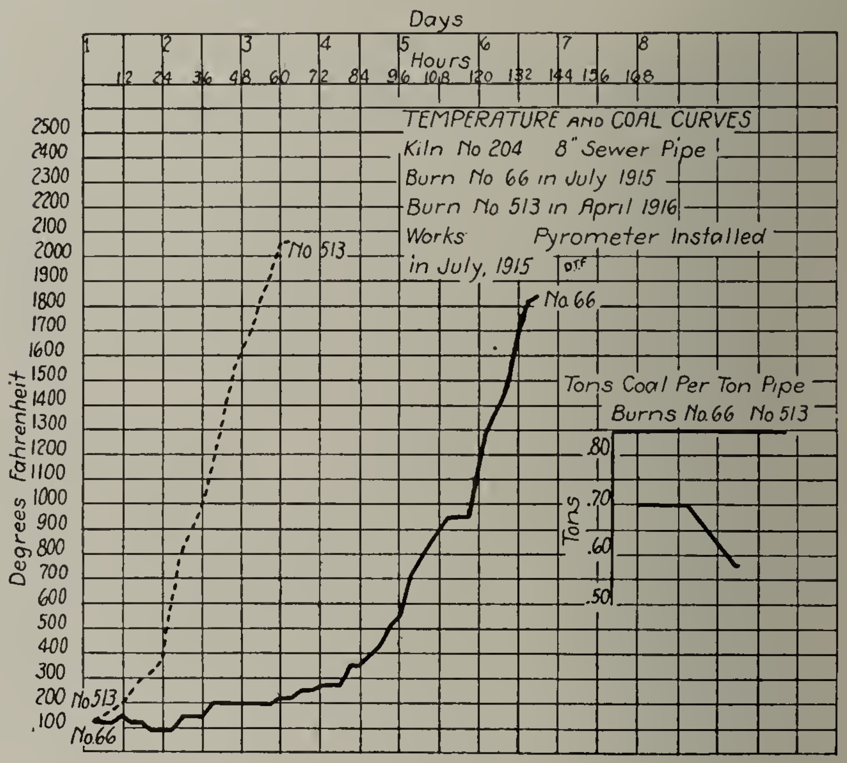
After the kiln bottoms have been cleaned out and drained—and both these things should be done much oftener than the executives of clay plants have any idea—the expert is ready to proceed with his standardization. It is essential not only that all kiln bottoms should be as nearly alike as possible—in order that the method of burning which gives the best results on one kiln will give it on all kilns—but it is also necessary that this standard design shall be one which will give satisfactory results. Otherwise the results might be uniform—*but they would be uniformly bad.*

Kiln designing is a profession in itself and no attempt can be made in an article of this sort to go into the details. Unfortunately, there is very little literature on the subject, altho an attempt was made to reduce flue proportioning and regulation to a science in a paper published in Volume Thirteen of the Transactions of the American Ceramic Society.* The mistake is made in the article, however, of assuming that the movement of hot gases follows the same laws as do those of cold gases—which is not the case. Fairly satisfactory results, however, can be obtained by following the rules set down in the article, as the writer has occasion to know. The two results which must be aimed at are:



Graph A

I—Flues large enough to obtain sufficient draft at *all* times.



Graph B

II—Flues so arranged that the burning can be absolutely and easily regulated by the burner. (Hot spots and cold spots are entirely unnecessary. The kiln bottom should be so designed that a competent burner, after observing the result of a burn or two, may easily, quickly and accurately effect a change in the draft by closing off certain flues, or by opening certain flues, which will give an absolutely even burn in all parts of the kiln.)

As we have stated, these results are easily attained if the owners are ready to spend the money. Even, however, if their resources are unlimited and their generosity is of equal magnitude, common sense dictates that the results should be obtained as cheaply as possible. If every clay plant would adopt for its motto: *"No Improvements unless they will pay for themselves in Two Years,"* there would be fewer business failures. We must follow common sense then and, after a careful survey of the kiln bottoms, the stack and the fire holes, decide upon what can be done to secure the best possible results with the least possible expense. In other words our standard must be: "Uniformly perfect kilns without spending any money." The final result may be a compromise but it must always be borne in mind that *real efficiency is economy.*

TECHNICAL CONTROL

While the kilns are being analyzed and standardized a record of exactly how the burning is conducted is built up.

The Pyrometer—A pyrometer is perhaps not absolutely necessary, but anyone who has used one in burning would never be without it, if he could help himself. The writer fired kilns and was head-burner for nearly a year on a yard where technical control might be said to exist and where no pyrometer was used, and knows from personal experience that very satisfactory results can be obtained on sewer-pipe, brick and conduits by using a thermometer registering up to 500 degrees, pyrometric cones and by keeping a careful record of just where the fires are on the grates, when the ware begins to show red, and so forth. However, there is no doubt in the writer's mind that even where careful records are kept and the burning is in charge of experienced men, that a pyrometer system will pay for itself in from a year to eighteen months. This saving is entirely aside from any saving effected by the use of technical methods of handling the burning, or by the application of the principles of scientific management. The reasons for this are briefy as follows:

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*See "Kiln Flue Regulation According to Some Ventilation Formulae," by Dwight T. Farnham.

I—Coal consumption varies almost directly with the number of hours the kiln is burned. If a steady advance in temperature is maintained and there are no setbacks (except, of course, such as may be intentional for the purpose of driving the heat to the bottom, etc.) the burning time is obviously not as long as if the heat is allowed to go back every little while and then has to be raised again. (See Graphs A, B and C.) The pyrometer, therefore, saves coal.

II—Many sorts of ware, such as sewer-pipe and paving-brick—when of a particularly vitreous variety—are injured by letting the heat go back. With the pyrometer the heat advance is steady. The pyrometer, therefore, increases the percentage of first grade product.

III—The longer each kiln is burned—the more kilns there are on fire at one time—the more labor there is required all the time. Anything, therefore, that cuts down the burning time reduces the labor expense. The pyrometer then reduces burning costs.

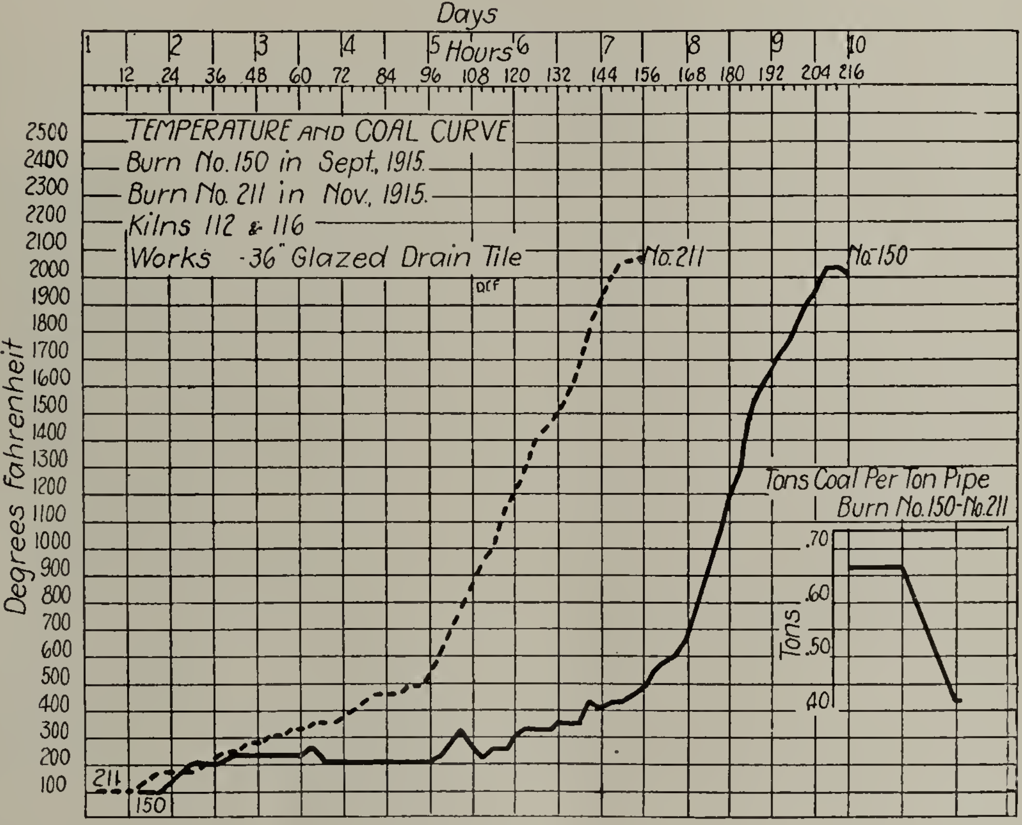
GRAPHIC ILLUSTRATION OF PYROMETER SAVINGS

Graph A shows at the right the first two burns which were recorded on a pyrometer. At the left are shown two burns made two weeks later. Results obtained are as follows:

1—On the first two burns the temperature went back on Burn No. 1 eight times and on Burn No. 2 five times. Two weeks later on Burn No. 17 and No. 18 the heat went back only once on each kiln.

2—The watersmoking time was cut from ninety-six to eighty-four hours and the high fire period from one hundred and eight to eighty-eight and eighty-two hours for the respective kilns. This represents a total saving in the burning time of thirty-six hours on each kiln or of seventeen per cent.

3—This cut in the burning time alone meant an increase of ten per cent. in the output of this particular factory, with a corresponding increase in the returns (in the form of profits) available for dividends, a decrease in the cost of manufacture and saved an expenditure of over six thousand dollars for new kilns.



Graph C

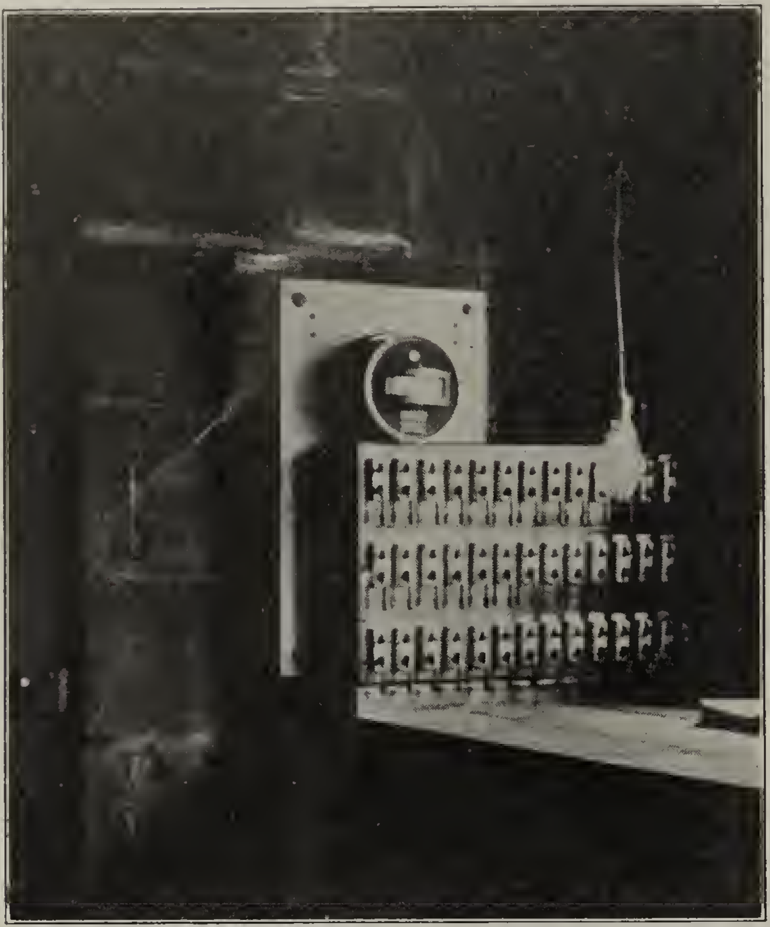
Just how much of this saving was due to the use of the pyrometer, to the installation of an effective record system, and to the application of technical knowledge and the principles of scientific management, it is impossible to say. The fact remains, however, that in two weeks the presence of the pyrometer so clarified the whole situation that all concerned knew exactly what they were doing at all times and it was possible to secure the maximum of progress and to effect the greatest economy in the shortest time.

The Draft Gauge—If the wind always blew from one direction at the same velocity, if the temperature and humidity were always the same and if there was always the same amount of moisture in the clay, the coal and the ground surrounding each kiln, there would be little use for the draft gauge. This is not the case, however, and consequently to secure standard operating conditions we must have some means of gauging the effect fluctuations in these various factors have upon the circulation of air in the kiln upon which we have to depend to dry our ware during the watersmoking period, to assist in the removal of various sorts of deleterious matter during the oxidation period, as well as the effect they have upon the behavior of the gases during the vitrification or settle period upon which we must rely to drive the heat to the bottom of the kiln. Theoretically, much more complicated apparatus is needed than the Seger gauge, but practically, once the kilns have been standardized, sufficiently accurate results can be obtained by an intelligent and consistent use of the Seger gauge if the damper is manipulated as the gauge directs. The result is a maintenance of that draft which guarantees the shortest watersmoking, the shortest oxidation and the shortest finish—all of which mean minimum burning time and lowest coal consumption. In addition it makes possible the employment of more scientific methods of driving the heat to the bottom of the kiln and, consequently, increases the percentage of hard burned brick or sewer-pipe and of the salable product.

Seger Cones—These are invaluable on the finish since they are affected by the kiln gases in much the same way as the clay ware itself. Any practical burner knows that a hard smoke will very often send a lot of hollow ware over in the kiln, even when the pyrometer does not register any appreciable rise in temperature. The cones detect just such conditions as this and, together with the trials and the settle in the case of brick, furnish the most accurate method of reproducing time after time a given and desirable set of conditions on the finish. The result can only be a higher percentage of salable ware.

Records—When the writer began firing kilns he carried in his hip pocket a much dilapidated and soiled note-book in which was recorded when each kiln was lit, what it contained and whether the ware was dry. This constituted his only burning record. In many parts of the country the same method prevails today and burners are depending upon their memory of past performances, upon their intuition and, in extreme cases, upon the flip of a coin to guide them as to what to do next on each kiln. This may have been all very well when the brick yard was part of the farm, and consisted of one scove kiln. Handling a battery of forty or fifty kilns of sewer-pipe or paving-brick is a different matter and, to date, no human mind has been constructed which can remember in sufficient detail just what is going on in every one of them, just what happened in each one of them last burned and the burn before with sufficient accuracy to insure one hundred per cent. efficiency on every kiln burned off.

It is here that one of the principles of scientific management enters strongly, namely, *immediate, accurate and adequate records, so designed and prepared as to aid actively in the administration of the business—records which make it harder to do the wrong than the right thing, which bring to the executive the best of past experience and which present exact knowledge in such form that it will be transmitted to his assistants so that it cannot be misunderstood, and must be followed in such a manner as will secure the best possible results at all times.*



Forty Kilns on One Pyrometer

BRIEF OUTLINE OF ADEQUATE BURNING RECORDS

The application of this system is difficult to describe in a paper of this sort. Briefly, however, it comprises:

I—The Daily Instruction Sheet, made out by the head burner each evening and containing written instructions as to how to carry each kiln during the next twenty-four hours in such form that the man actually firing each kiln knows just what to do.

II—The Burning Progress Sheet, on which each fireman enters in detail the exact condition of his kiln or kilns every three hours, and which is so arranged as to make comparisons between kilns obvious and easy.

III—The Finish Sheet, which is a record of the finish of each kiln in detail and contains space for entering the details of cooling, the results obtained and recommendations as to changes in the kiln, the method of firing, etc.

IV—Analytical and Comparative Records. There is considerable variation in these sheets. The object, however, is to compare the results obtained and the methods used to obtain these results in such a way that conclusions as to the most effective treatment are obvious.

By the consistent and regular use of these records, which sound much more formidable than they really are, since the firemen, regardless of whether they can speak English or not, are taught to keep up most of them, another principle of scientific management is applied—that of the "rachet" or "fish-hook grab," which means that *any advantage once gained must never be lost.*

The advantage of this is obvious. Anyone who has been around a brick yard to any extent knows that every once in a while there is a "freak burn"—a burn which turns out phenomenally good ware, or which used an extraordinarily small amount of coal. With the "rachet" principle firmly established, these freaks are made "regular things." This cannot be done, however, when the only burning record is the greasy note-book in the burner's hip pocket. Conditions must be recorded in sufficient detail to make intelligent analysis possible. When this is done freaks merge into the regular thing and the decrease in coal, the increase in first quality ware and the economies effected generally mean satisfaction thruout the factory and increased earnings for the stockholders.

THE BONUS REWARD

Once conditions have been standardized, and the burning accurately recorded and analyzed, it is possible to set standards of attainment as to:

1. Coal Consumption.
2. Firing Labor.
3. Percentages of First Quality Ware.

Once it has been decided what is a reasonable standard, taking into consideration the particular clay and coal used, the prevalent labor conditions, etc., etc., etc., it is possible to offer the burners and the firing crew a monetary reward for the attainment, or partial attainment of this standard. The setting of these standards requires considerable care, experience and judgment, inasmuch as *to be effective in securing results they must be just exactly as fair to the men as to the company.*

Too much must not be expected of the men, proper fatigue allowance must be made and every assistance possible must be rendered which will enable them to secure their reward whenever they honestly earn it.

On the other hand a mistake in judgment as to what ought to be accomplished—say in increasing percentages—might result in a payment entirely out of proportion to the effort expended by the men and would leave the company to decide between paying out hundreds of dollars unnecessarily or cut-

Fireman Taking Draft Gauge Reading

ting the bonus arbitrarily—in which case either course would be disastrous.

RESULTS

Individual Burns—The effect of setting a fair mark to shoot at and then making it worth the while of every man on the job to hit the bull's-eye is difficult to comprehend unless you have been thru it. Instead of one burner-boss you have a score. Every man from the boss down to the water-boy makes it his business to see that the best possible results are obtained all the time, because his earnings depend upon the attainment of the standard set, and woe be unto anyone who interferes with the attainment of that standard. The interest of each man on the firing force in the company's earnings is by no means confined to his own particular job. At this very time a friend of the writer's who is working under the system—a head burner in a clay plant employing over two hundred and fifty men—is, in his own interest, frantically writing around the country to every practical mine boss and mine engineer he knows, to find out how to handle a certain clay mining proposition in such a way as to give him all the clay of certain grade he wants in order to increase his percentages and, incidentally, his bonus.

It is not all mercenary either. The system increases the men's pride in their work and their interest in their work. They have a definite goal and the game element enters into the thing—a little of the spirit that makes street corner crowds cheer a base ball score or which induces our captains of industry to toil in the sun over a golf course in a race with Col. Bogey.

WHAT SCIENTIFIC MANAGEMENT WILL DO IN THE BURNING OF SEWER PIPE

The graphs marked "B" and "C" show, to a small degree, the results which Scientific Management will obtain when applied to sewer-pipe burning. It will be noted that the curves which illustrate typical burns for their respective periods on the same sized pipe on each sheet, indicate for eight-inch pipe on graph B a reduction in the burning period from one hundred and thirty-eight hours in July, 1915, to sixty-three hours in April, 1916—a reduction of seventy-five hours, or fifty-four per cent. in eight months. The coal was reduced from .70 of a ton per ton of pipe to .58, or seventeen per cent. in spite of the higher temperature reached.

Graph C shows the reduction in burning period on a kiln of thirty-six-inch glazed tile of sixty-six hours—from two hundred and sixteen to one hundred and fifty, or a reduction of thirty per cent. The coal in this case was reduced from .66 tons to .41, or a thirty-eight per cent. decrease. The time required to effect this improvement amounted to three months.

What Happens to Sewer-pipe When You Try to Save Coal by Shortening the Burning Time According to the Principles of "Unscientific Management"

General—The principles described have been applied either as a whole, or in part by the writer and by his friends to at least ten different clay plants manufacturing among other things, sewer-pipe, paving-brick, drain-tile, architectural terra cotta, building block, electrical conduit, fire-brick and building-brick.

SOME MARVELOUS ACCOMPLISHMENTS

The most recent application of these principles to burning hollow-ware resulted in seven months in effecting burning labor economies, amounting to over $5,000 yearly, in increasing the percentage of first quality product sufficiently to add over $8,500 to the annual return, and in saving kiln coal at the rate of over $13,250 per year—economies amounting altogether to over $26,000 per year.

First quality ware increased twenty per cent., and unsalable second quality ware decreased four hundred and eighty per cent., while the amount of coal used per ton of product was reduced forty per cent.

Wherever the principles have been applied the men have been more contented, the company has been better able to hold its men, labor troubles have decreased, the kiln output has been increased and the economies which have been effected thru the higher percentages of first grade product obtained, the decreased labor cost, and the lower coal consumption have been ample return for all the labor and effort expended.

* * *

Roofing Tile in the Golden West

An interesting and valuable addition to the practical literature dealing with the use of burned clay roofing-tile has recently been made by the Los Angeles (Cal.) Pressed Brick Company. With the exception of the foreword, which gives an enlightening description of the general uses to which this product may be put, and the many styles to choose from, the booklet is a collection of beautiful pictures of private homes and residences, churches and industrial buildings that have been enhanced in permanency and attractiveness by the use of this material. Photographs of models of each separate style of tile, accompanied by detailed drawings showing the method of laying them, take up a part of the "new addition," while a page of specifications, detailing the conditions under which the tile should be laid and the manner of laying them, is also included. The booklet is concluded with a list of a large number of other buildings that have used the company's product as a roofing material.

INDUSTRY SLIPS BACK *a* NOTCH

While Production Figures Covering All Clay Wares for 1915 Show a Slight Loss Over Previous Year, Prospects for Big 1916 Total Are Exceedingly Bright

ONCE MORE the time has arrived to record the progress of the clayworking industry for a year—this time for 1915.

Owing to the fact that it requires considerable time to compile the production figures of the various products made from clay, the government is only now issuing its report for the previous year, which, coming at this time when nearly every factory is operating to capacity—that is, if it is able to get sufficient help—seems a little out of place, for its figures show a step still farther back when compared to the total of the preceding year—1914—and the year previous to that. The total value of clay products manufactured in the United States during 1915 was $125,794,844, compared with $164,986,983 in 1914 and $181,289,132 in 1913. However, the United States Geological Survey, in commenting on a part of the showing made in 1915, states:

"The decrease in these industries (common-brick, sewer-pipe and terra cotta) occurred during the early months of the year, but the conditions improved during the last three or four months of the year, the year closing with bright prospects for 1916."

This probably explains why the figures for 1915 are so unfavorable in the light of present conditions, for they include only the very early stages of a rise in demand for clay wares that has yet to see its highest point. There is little doubt but that the figures for 1916 will tell a different story when they are made public next year about this time.

The data for 1915 shows that three varieties of brick, tile and miscellaneous products increased in value during that period, when compared to the preceding year. Front or face-brick, valued at $9,535,536, increased $245,913; drain-tile, valued at $8,879,264, increased $357,225; fire-brick valued at $18,839,931, increased $2,412,384, and miscellaneous products, valued at $3,716,944, increased $551,130. There was a decrease, officials say, of the total production of all clay wares amounting to three per cent. when compared to 1914. The product that showed the greatest decline was sewer-pipe. Common-brick and terra cotta also showed a decrease when compared to the previous year.

COMMON-BRICK

The principal clay product, considered as to value, is common-brick, the value of which comprised one-third of that of all brick and tile products in 1915. The quantity reported for 1915 was 6,851,099,000 brick, valued at $42,145,292. The average price per thousand of common-brick increased only three cents, or from $6.12 in 1914 to $6.15 in 1915. Illinois was the leading common-brick producing state in 1915, reporting 1,066,057,000 brick, valued at $6,870,990. Of Illinois' output, 739,173,000 brick, valued at $4,794,452, or about seventy per cent. of the quantity and value of the state, was from Cook county.

FIRE-BRICK

The second clay product in importance is fire-brick, the output of which was valued at $18,839,931 in 1915. The value of fire-brick in 1915 comprised nearly fifteen per cent. of the value of all brick and tile products. Fire-brick is used principally in the iron, steel and coke-making industries, and its production naturally rises and falls with the fluctuations in these industries. The production of clay fire-brick in 1915 was 833,739,000 nine-inch equivalent brick, valued at $15,800,062, or $18.95 per thousand. The leading state in the production of clay fire-brick is Pennsylvania. This state reported for 1915 a production of 379,042,000 nine-inch equivalent fire-brick, valued at $7,177,629, or $18.94 per thousand. Pennsylvania produced nearly half the output of the country.

The output of silica fire-brick in 1915 was 130,244,000 nine-inch equivalent brick, valued at $3,039,869, or $23.34 per thousand, an increase of 551,000 brick in quantity and $88,344 in value over 1914. Pennsylvania is also the leading state in the production of silica brick.

VITRIFIED BUILDING BRICK AND PAVERS

Production of vitrified brick or block, valued at $12,230,899, or 9.72 per cent. of the value of all brick and tile products in 1915, was reported from 31 states. This was a decrease in value of $269,967 from 1914, and the average price per thousand decreased from $13.42 in 1914 to $12.83 in 1915. Of this output 824,359,000 brick or block, or eighty-six per cent., valued at $11,114,427, or $13.48 per thousand, were sold for paving and 128,976,000 brick or block, valued at $1,116,472, or $8.66 per thousand, were sold for uses other than paving. Ohio was the leading state in the production and value of vitrified brick in 1915.

SEWER-PIPE

Sewer-pipe, fourth product in value, with an output worth $11,259,349, or nearly nine per cent. of the total, was made in twenty-seven states in 1915. The leading states in the production of sewer-pipe in 1915, named in the order of their importance, were: Ohio, Missouri, Pennsylvania, California, Illinois, Georgia, Indiana, and Iowa. Pennsylvania was the only one of the leading states to show an increase in the value of sewer-pipe in 1915. The decrease in the total value of sewer-pipe in 1915, compared with 1914, was $2,755,418.

FACE-BRICK

There were 855,668,000 face-brick marketed in 1915, valued at $9,535,536, or 7.58 per cent. of the total, an increase of 45,273,000 brick in quantity, and of $245,913 in value. Face-brick was reported from forty-two states in 1915. Pennsylvania leads in production and value, reporting 244,781,000 brick, valued at $2,631,795. Ohio ranked second, reporting 185,605,000 brick for 1915, valued at $1,925,096, a decrease in quantity of 2,469,000 brick and of $19,390 in value. Indiana ranked third in this product, reporting 83,610,000 brick, valued at $897,242, an increase over 1914 of 3,261,000 brick and $97,722. These three states combined, produced about sixty per cent. of the entire quantity and value of face-brick in 1915.

DRAIN-TILE

Drain-tile ranked sixth among the brick and tile products in value in 1915. The output was valued at $8,879,264, or 7.06 per cent. of the total in that year, an increase of $357,225 over 1914. The Middle West is the great producing region for this product (altho it was reported from thirty-six states in 1915), Iowa, Ohio, Indiana, Illinois and Michigan reporting nearly eighty-eight per cent. of the total in 1915. Iowa ranks first, reporting drain-tile to the value of $3,802,599 in 1915, an increase of $621,763 over 1914. Ohio was second, with $1,430,385 worth in 1915, a decrease of $159,180 from 1914. Indiana was third in 1915, with $1,253,085, a decrease of $78,197 from 1914.

FIREPROOFING

Fireproofing, including hollow building tile, ranked seventh among brick and tile products in value in 1915. It was reported to the value of $7,800,938, or 6.20 per cent. of the total, a decrease from 1914 of $584,399. Ohio is the leading state, reporting fireproofing to the value of $2,172,701, a decrease of $27,843 from 1914. New Jersey was second and Iowa third in 1915, New Jersey reporting $1,369,120, a decrease of $210,175 from 1914, and Iowa $1,008,457, a decrease of $74,940 from 1914.

⁂

Iowa Company to Build Employe Homes

With a view to raising the standard of living of its employes and making their lot a happier and more contented one, the Morey Clay Products Company of Ottumwa, Iowa, is contemplating building a large number of hollow-tile and brick houses in the vicinity of its plant for their use. Many of the one hundred men and boys in the employment of the company live at long distances from the plant, so the construction of these buildings will place them conveniently near their work.

Unlike squalid rows of mining camp huts, each one the counterpart of the other, these homes are to be of many different, attractive and home-like designs, and, according to Mr. Morey, they will be distributed thruout the district near the plant. Besides providing for the comfort of the men, the houses will demonstrate the use of hollow-tile as a building material and afford such excellent examples of permanent construction at a low cost, that they will undoubtedly influence future builders of that city in their choice of materials.

Many modern conveniences are to be provided in the houses. The local gas company is at the present time extending its service to the district in which they are to be located. They will be rented to the men at a low figure.

This is but another of Dan Morey's moves that have made him the employer of a number of faithful workers and affords an excellent example of a good method for avoiding labor troubles.

New Steamship Reopens Clay Market

Since the outbreak of the European war many of the southern clay miners and shippers have been doing very little business. Among these is J. C. Melcher of LaGrange, Tex., who, when unable to ship clay, usually fell back upon his numerous acres of cotton land. The pranks of the war, however, so reduced the earning power of the cotton growers that many of those who had leased his property, together with himself, found conditions very hard. This state of affairs prevailed until recently when the new ship "Chanal" began to ply her way between Texas and New York, thus opening up the clay market once more. As a result, Mr. Melcher reports, he has made arrangements with New York clay dealers to ship by water from Houston, a large number of tons of kaolin, paper clay, pumice dust for glazing, fire-clays and magnesite ore.

Dredging River Prior to Plant Opening

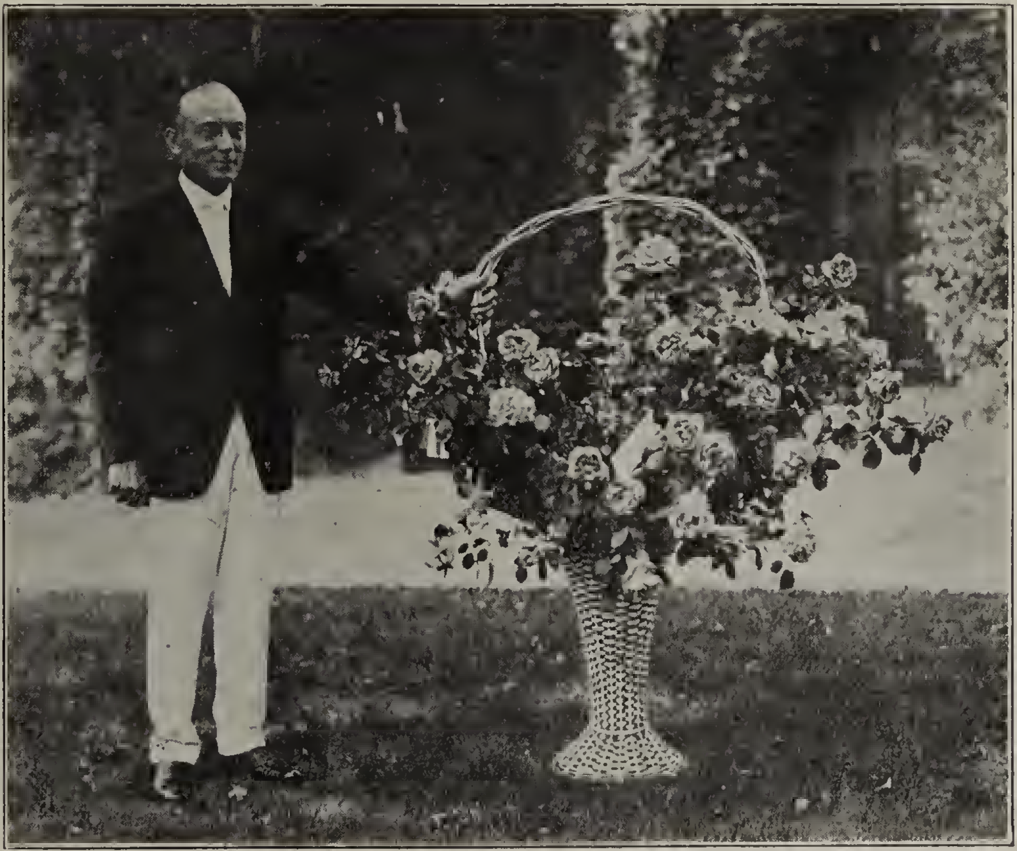
The work of dredging the Skipanon River at Warrenton, Ore., has commenced, preparatory to the completion of the plant of the Warrenton Clay Products Company. Several carloads of machinery are expected by September first and it is hoped to have the plant ready for operation early in November. The company has already moved into its offices to the factory site.

EMPLOYES SURPRISE BRICKMAKER *on* FIFTIETH BIRTHDAY

On Tuesday, August 22, John S. Haggerty, a Detroit Brick Manufacturer, Remembered That This Was His Natal Day and That He had Reached the Half-Century Mark in Life's Journey.

He Came Down to His Office as Usual, Opened His Desk and Set About the Tasks of the Day, When, to His Surprise, a Group of Young Ladies—His Employes—Dressed in White, Walked in to Present Him with a Huge Bouquet of "American Beauties." There were Fifty Roses in the Bouquet, Each Representing a Friend.

In Addition to Manufacturing the Best of All Building Materials, Mr. Haggerty Devotes a Part of His Time to His Duties as Road Commissioner of Wayne County, Mich. He is Still a Bachelor.



Picking Up the Clay with a Gatherer After it Has Been Weathered for a Year in an Open Field

WINNING the FIGHT against FAILURE

How, in the Face of Bitterest Trials and Discouragements, a Drain-tile Maker Has Come Out on Top in His Struggle to Solve a Vital Plant Problem

UTILIZING A CLAY that has for many years been considered worthless by the industry at large because of the excessive amount of impurities it contains, is the achievement of a drain-tile manufacturer, whose identity we are not at liberty to disclose. The history of his experiences might well be held up to clayworkers as an excellent example of the results possible when prolonged endeavor, coupled with unlimited courage, is applied to the manufacture of burned clay products.

Bemoaning the fact that the drain-tile maker is up against a pretty hard proposition in manufacturing and selling his product at a profit, many makers of that commodity blame fate for their unprofitable undertaking. This story, however, by virtue of contrast cannot help but show the very favorable conditions under which the average plant operates when *real difficulties* are taken into consideration.

Including the narrative of a struggle that has extended over a period of thirty-five years to master the clay at hand and make from it a first-class product, this tale has much of the element of human interest, portraying the indomitable spirit of a man whose unfailing aggressiveness and courage made him conqueror of the soil in a much different light than is ordinarily understood by that term.

LIMESTONE AND GRAVEL IN CLAY

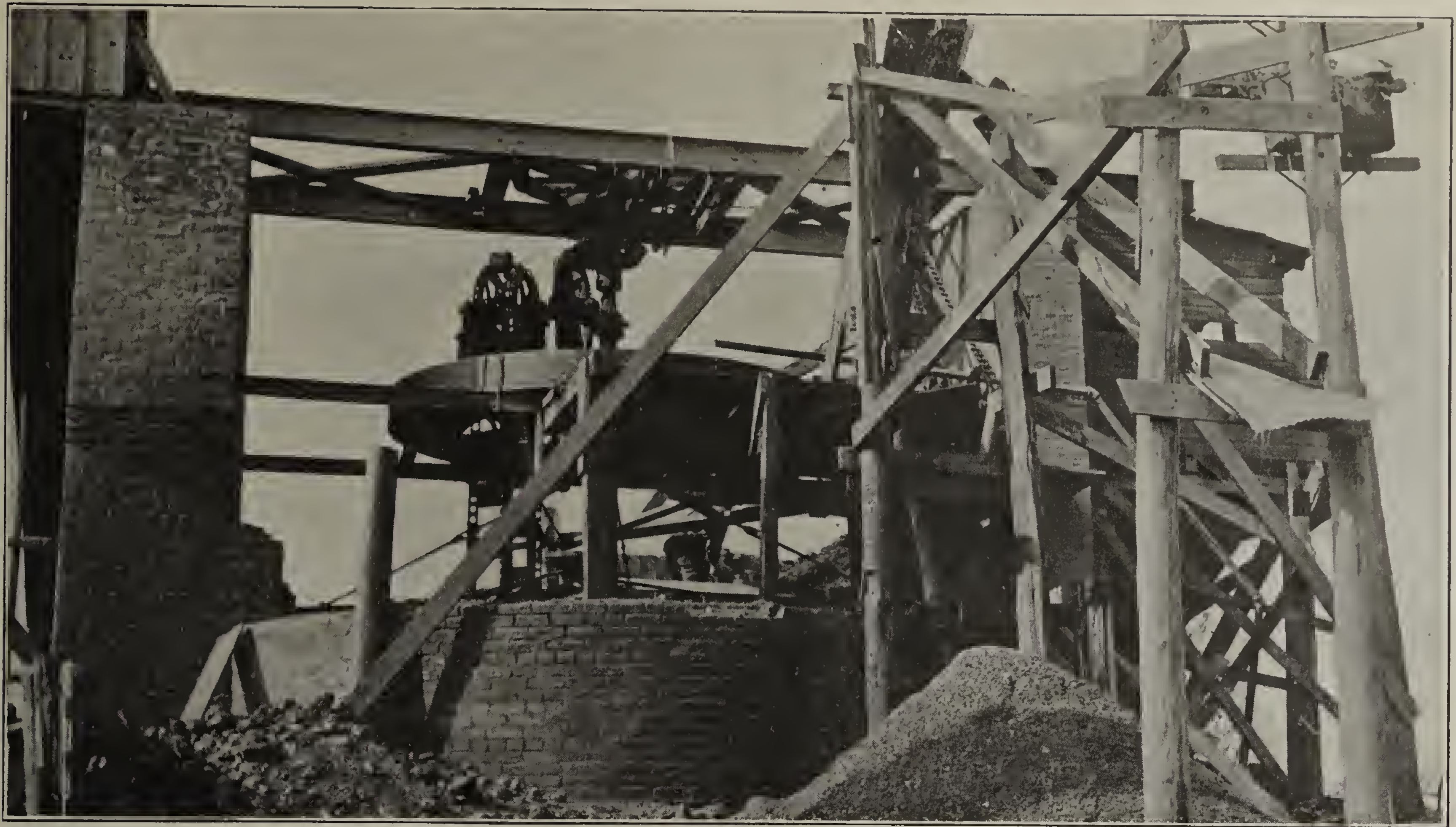
At the time the plant was started the principal products were brick and drain-tile, the market for both being exceptionally good. The clay, however, suited the manufacture of neither. Being part of a gray glacial drift, it contained an unusually high percentage of limestone and gravel, both of which had to be removed if a satisfactory product was to be obtained.

The passing of time with its accompanying consumption of the supply of raw material has failed to reveal a clay that is materially changed in character. It still holds its excessive quantity of the troublesome impurities. During the life of the plant about which this story is written, practically every method of eliminating the limestone pebbles and gravel has been tried. Every new treatment meant an additional outlay to be borne by the company, successively taxing the courage of those whose fortunes hung in the balance on the success or failure of the enterprise.

WASHING MACHINE AT LAST SOLVES THE PROBLEM

After the failure of other methods to successfully accomplish the separation of the impurities from the clay, a washing machine, which was designed by the owner of

Preparing Against a Rain. Dumping Moist Clay from One of the Settling Ponds Upon Firmer Ground, Where it Can Be Gathered Under Any Weather Conditions



The Clay Washing Machine Which Has Solved the Problem of the Drain-tile Manufacturer About Whom the Accompanying Story is Written. Note the Pile of Gravel in the Right Foreground. This Material Has Been Washed Out of the Clay Prior to Its Being Weathered and Molded Into Tile

the plant after many years of experimenting, and which is somewhat similar to those in use for the same purpose in Europe, was erected. The parts of the machine were, in fact, imported from Europe. After five years of service, it appears that this method has at last proved to be the solution of the problem. It has made possible the manufacture of brick and hollow-ware from the impurity-laden clay at hand on a commercially profitable basis.

Altho it accomplishes the marvelous result of obtaining a clay that tests in some parts of the settling pond ninety per cent. kaolin, from an original material that is considered almost useless because of the foreign material it contains, yet it is very doubtful that the process is an enviable one. Only in the hands of a man whose courage is equal to many reverses and whose perseverance is capable of withstanding the heavy demands that are made upon the pocketbook during the first few years (with a question mark after profits for many months following the experimental stage) would the machine prove a success.

THE PROCESS IS NOT A DESIRABLE ONE

The use of this washing machine would, no doubt, be of value in working out the salvation of any manufacturer who had a clay of the kind above described, but for one to seek out such a deposit and believe that by the aid of a washing process he could make big money on anything less valuable than faience or art pottery, would certainly be a very foolish step. The process is far from being a desirable one and only serves to emphasize the favorable conditions under which the average drain-tile manufacturer is working. Entailing additional labor, machinery and ground space, it adds appreciably to the cost of manuacturing the tile. The initial cost of the equipment necessary is high and this, together with the cost of operation, makes it an expensive process.

DRAG-LINE USED IN GATHERING CLAY

The clay is gathered from the pit at the plant in question by means of a drag-line scraper of a peculiar design. Attached to both the front and back of the scraper is an endless cable operated by a double drum which is housed near the discharging platform. The drum upon which the cable, attached to the front of the scraper, is wound, is operated when the scraper is to be hauled in with its load of clay, while that upon which the cable attached to the rear of the scraper is fastened, is revolved when the scraper is to be drawn back into the pit.

A second drum and cable supply the power for drawing the loaded cars from the pit to the washing machine, where it is thrown into the receiving hopper.

A DESCRIPTION OF THE WASHING MACHINE

The machine itself is about fifteen feet high and twenty feet square, being capable of taking care of one hundred and thirty yards of material per day. When the clay is thrown into the machine from the car, it is mixed with an excess of water in a cylindrical washing pit at the bottom, which is about four feet deep. Here the mixture is agitated by means of a series of vertical rods that are suspended from the cross-beams of a rotating wheel arrangement, said beams centering in a revolving shaft in the middle of the pit like spokes into the hub of a wheel. The movement of these rods in the machine throws the larger pebbles towards the center of the washer while the fine clay and sand become suspended in the water and distributed in a fairly even manner thruout the pit.

The gravel and large pebbles are removed from the center of the washing pit by means of a bucket elevator that is operated continuously. This elevator, since it is attached to the center shaft, revolves with the same speed around the pit as the rods that stir up the water.

As the buckets are filled they are elevated to the circular shelf at the top of the machine shown in an accompanying illustration, where they deposit their contents. Following the course of the buckets is a rod attached to the center revolving shaft that sweeps the discharged material into an inclined trough at the rear of the machine.

Since the buckets dip considerably below the surface of the water in the washing pit in removing the pebbles of limestone and gravel, they are bound to elevate some of the suspended clay. In order to re-claim this material, the inclined trough into which the elevated material is conducted, is kept overflowing with water, this again suspending the clay particles and carrying them over the edge of the trough back into the pit. After the gravel has been swept into the trough it gradually works to the other end where a second elevator is at work raising it up and over a platform from which it throws it in a pile on the ground. A stream of water is kept running down this platform washing out of the buckets all of the suspended clay that may have found its way to that point, sending it back into the pit.

One of the Three or Four Settling Ponds to Which the Clay Solution from the Washing Machine is Conveyed

TWO-FOLD REASON FOR THORO WASHING

There is a two-fold reason for this thoro washing. Besides securing maximum efficiency from the machine by separating practically every particle of usable clay from the gravel and limestone, it also produces a gravel so clean that it may be used for concrete work. This results in a by-product in which there is some little profit, a ready local demand existing for the gravel that comes from this machine.

Going back to the clay in the washing pit, we find it is suspended there in the water with fine particles of sand and is allowed to escape thru a screen of the proper mesh on the front of the machine. The passing of this clay thru the screen insures only the very small particles of clay and sand getting thru and prevents any of the large pebbles, either gravel or limestone, from finding their way to the settling pond to which the suspended mixture is led from the washing pit by means of a trough.

In one of these ponds (there are three or four of them) the clay is allowed to settle. The sand, being heavier, settles nearest the intake, while the finer and lighter clay matter is carried to the other end of the pond. This results in a very uniform gradation from the sand at one end of the pond to almost pure clay (ninety per cent. kaolin) at the other end. After partial settling, some of the water may be pumped off and the rest allowed to evaporate and sink into the ground.

The clay is then subjected to one year's drying and weathering.

WHERE MOST MANUFACTURERS BEGIN

When ready for use after having been in the field for a year, the clay and sand are again mixed in approximately the same proportions as they originally existed in the pit and sent thru the ordinary processes of manufacture. This is the point where most drain-tile manufacturers begin their operations, but in the case of the plant herein referred to, the greater part of the work is over when the clay has reached the molding machine.

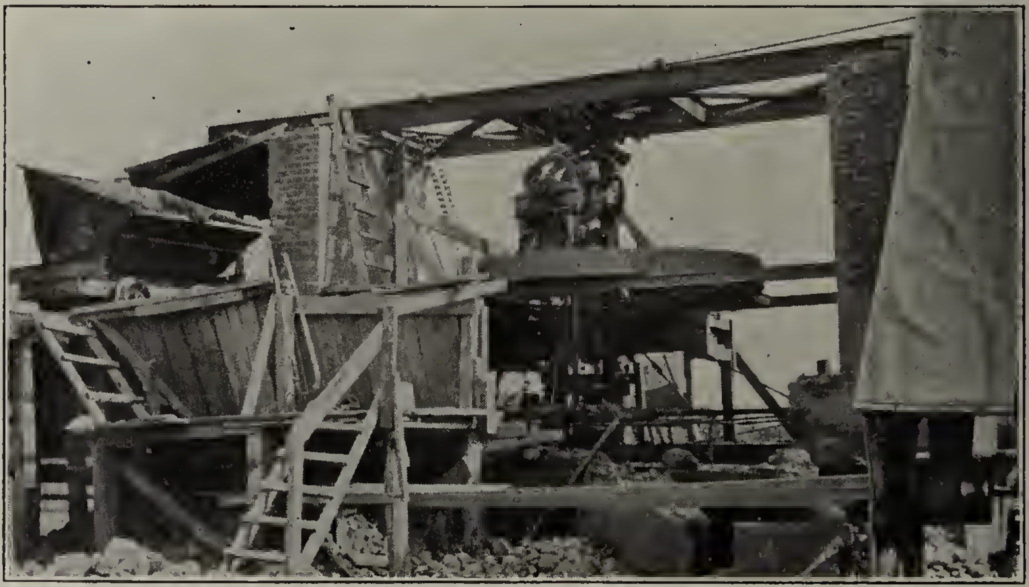
The clay in the ponds from which the pug-mill is being fed, is in a comparatively loose and unpacked condition and is too soft to support the clay gatherer or a cart after a rain. It is necessary, therefore, to guard against this emergency if the plant is to be kept operating at capacity thruout the season. This is done by transporting some of the weathered clay from the drying fields to solid ground. Two horses, and as many carts, are continually in use performing this duty, adding another item to the cost of manufacturing the tile.

In reviewing the many steps taken at this plant to produce its product, it hardly seems possible that there can be much of a margin of profit in the sale of its ware, unless marketing conditions are of the best and the demand is sufficient to absorb the entire output at good prices. It is evident that the clay must pass thru many more operations than is ordinarily the case in manufacturing tile. This system represents a tremendous investment and much additional expense above that usually met with in this branch of the industry.

THE CROWNING FEATURE OF THE WHOLE SYSTEM

However, in spite of its many discouraging features, the method in vogue at this plant has one crowning feature—namely, it opens up for utilization a vast amount of clay that has heretofore been considered worthless because of its impurities. Because of an attractive market, it makes possible the production of a high-grade brick and drain-tile on a commercially profitable basis.

But back of it all stands a figure that is well-known in his particular section of the country—a man that knows not defeat, who has not flinched in the face of bitterest trials and discouragements and who deserves more credit than he is given for his part in promoting burned clay drain-tile for use in the improvement of unproductive land.



A Front View of the Washing Machine, Showing the Point Where the Clay from the Bank Enters the Process of Being Purged of Its Impurities

The SELECTION *of* MEN

Wherein is Described a System of Keeping Employes' Records Which Has for Its Object the Getting of the Right Man on the Right Job

By William G. D. Orr

General Manager, Purington Paving Brick Company,
Galesburg, Ill.

PERSONAL ACQUAINTANCE on the part of the foreman, superintendent or manager with his employes is a most valuable asset to all, and of inestimable value to the corporation for which he is working. No system of hiring men has yet been devised which successfully replaces the personal judgment of an experienced employer. However, employers, no matter how experienced, have their limitations, and one among these is the impossibility of having direct personal knowledge of more than a limited number of men. The number, of course, varies in different businesses and under different conditions in the same general line of business.

HOW CLAY PLANTS ARE HANDICAPPED

We, in the clayworking industry, are unfortunate in this particular, that the majority of our plants, thru conditions over which we have no control, are necessarily shut down during some season of the year. This lack of continuous operation multiplies the problems of the employer and employe and necessitates at least the partial rebuilding of the working organization each time manufacturing is resumed.

It is difficult to specify the size an organization should attain before systematic methods should be adopted for the selection of the working force. Any company employing one hundred men or more will be well compensated for the installation of a system of employe's records.

ULTIMATE OBJECT OF KEEPING EMPLOYES' RECORDS

The workingmen's compensation laws in force in a number of states make such records almost a necessity for the protection of the employer against simulation and the other practiced abuses of the statutes. However, the ultimate object in keeping employe's records should be to get *the right man in the right job.* In other words, to prevent trying to "fill round holes with square plugs," or vice versa. This idea can be carried to any extreme. Some companies in other lines have already developed it to the extent of scientific "character study," the theory of which is rapidly expanding and, in the near future, will undoubtedly be developed to the point where it will work in with a business as crude as our own.

In the meantime, a practical working system can be installed and maintained at a cost that is negligible, when the benefits to be derived are taken into consideration.

SYSTEM HEREIN DESCRIBED A SUCCESS

The system described hereafter has been adopted by a number of companies, having been used by one large company for the past five years, and the result warrants its continuance until a better one is found.

When a man is put to work in any department, the foreman fills in the blank shown as No. 1 and sends it to the office at the earliest opportunity. From the information there obtained, the man's references are investigated by form letter, shown as No. 2. These letters are sent out with stamped return envelopes enclosed, and it is only in exceptional cases that the people addressed fail to return the form with the information requested. If the replies are satisfactory, the man is so notified and instructed to appear at the office of the company's doctor for examination.

NEW EMPLOYE'S CARD

1m-11-14 Carlson Bros. Moline

Name
Address
Date Employed
Age
Married
References
Company
Address
Foreman
Employed From To
Company
Address
Foreman
Employed From To

Form No. 1

The examination card is shown as forms No. 3 and No. 4. There are a number of questions on this card which to some might seem superfluous. They have all been given considerable thought, and are there for some reason. Of course, a great many men will not admit having had many of the diseases mentioned, but enough answer truthfully to make the questions worth asking. The answers given to the questions on the first fifteen lines, and to those on the last four, are sometimes very valuable when settling personal injury cases. Especially so when working under a compensation law, such as the one now in force in the State of Illinois.

The doctor rejects men for the following causes:

- **Bad eyesight,**
- **Bad hearing,**
- **Bad heart,**
- **Excessive blood pressure,**
- **Hernia,**
- **Syphilis,**
- **Albumen or sugar in urine.**

as any of them may cost the company considerable money in case of accident. For instance, a man with hernia might have a strangulation while at work and possibly cause death. Without previous medical examination, the company in all probability would have to pay the full compensation under the law, altho the rupture originally occurred prior to his employment.

The superintendent is not permitted to overrule the doctor's rejection. This rule prevents the employment of defective men thru friendship.

Listing marks of identification, such as tattoo, birth marks, scars, and so forth, is often of assistance in recognizing foreigners of the class who change their names when they change employment. On the reverse side of the card, shown as No. 4, is kept a record of all injuries, departments in which man has been employed, his record from previous employer and, when he leaves the employ of the company, the reason for his so doing is noted on the bottom of the card.

AN EXCELLENT RULE

The foreman before discharging a man must consult the superintendent or manager, and to one of them explain the cause of discharge. This eliminates the possibility of a foreman discharging a man simply because he has lost his own temper.

If a man is to be let out because of his inability to fill a certain position, this rule gives the superintendent or manager an opportunity to relocate the man.

A man who is a poor brick wheeler may make a good fireman, or a man who is dissatisfied when working by the day may make an excellent piece-worker.

The above is merely an outline of a plan that has been tried and found satisfactory. The details would consume too much space to be explained in these columns.

The labor unions vehemently oppose any system of this sort, which ought to be the very best and sufficient reason for its adoption by employers. Especially to those employers who are fortunate enough to have open shops, still retaining the management of their own business and the right to discharge those whom they consider unfit.

Has This Article Helped You
to a new thought or idea? Do you want further inspiration for your work? If so, read the SEPTEMBER 19 ISSUE.
Announcement of Features on Page 392.

EMPLOYEE'S CARD

Name Residence
Age yrs. Where born Nationality S. M. W.
Date Employed
Name of wife Names and ages of children living
Names and residence of parents, if living
Have you contributed to the support of your wife and children within five years?
How much, to whom and when have you contributed to the support of your parents during the past 5 yrs.
Have you contributed to the support of any other relatives during the past 5 years?
Give name, relationship and approximate amount and date of contributions
Give name of last employer
What, if any, accidents or operations have you sustained?
From what illness or disease have you suffered and when?
When did you last consult a physician?
What for?
Have you ever had or do you ever have Rheumatism? Epilepsy? Fits?
Syphilis? Brain Trouble? Mental Infirmities? Vertigo. Headache, severe?
Protracted or frequent? Loss of Weight? Diabetes? Diseases of the kidneys?
Paralysis? Fistula? Tuberculosis in any form? Cough, frequent?
Chronic or with bloody sputum?
Do you use or have you ever used intoxicating liquors to excess?
Do you now use or have you ever used habitually chloral, morphia, cocaine or any other narcotic?
Are you temperate in all your habits?
Are you now in good health as far as you know or believe?
Are you receiving from any employer compensation for partial permanent disability?
If so, state amount
Do you understand all of the questions you have herein answered?
I, the undersigned, do hereby affirm that I have answered all of the foregoing questions truthfully to the best of my knowledge and belief.
Witness Signature
Date

PHYSICAL EXAMINATION

Height feet inches Weight lbs. Eyesight
Wears glasses Hearing Pulse Temperature °F. Respiration
Heart Lungs
Blood Vessels Nerve Reflexes
Chest--Expiration in. Inspiration in. Mobility in. Romberg Test
Glands Hernia Wears Truss
Deformities
Urinary System--Specific Gravity Albumin Sugar
Reaction Test Employed Test Employed
Marks of identification
Remarks:

Date M. D.
Examiner

Form No. 3

INJURY RECEIVED

Date	Nature of Injury	Ret. to Work	Doctor	Settled	Amount

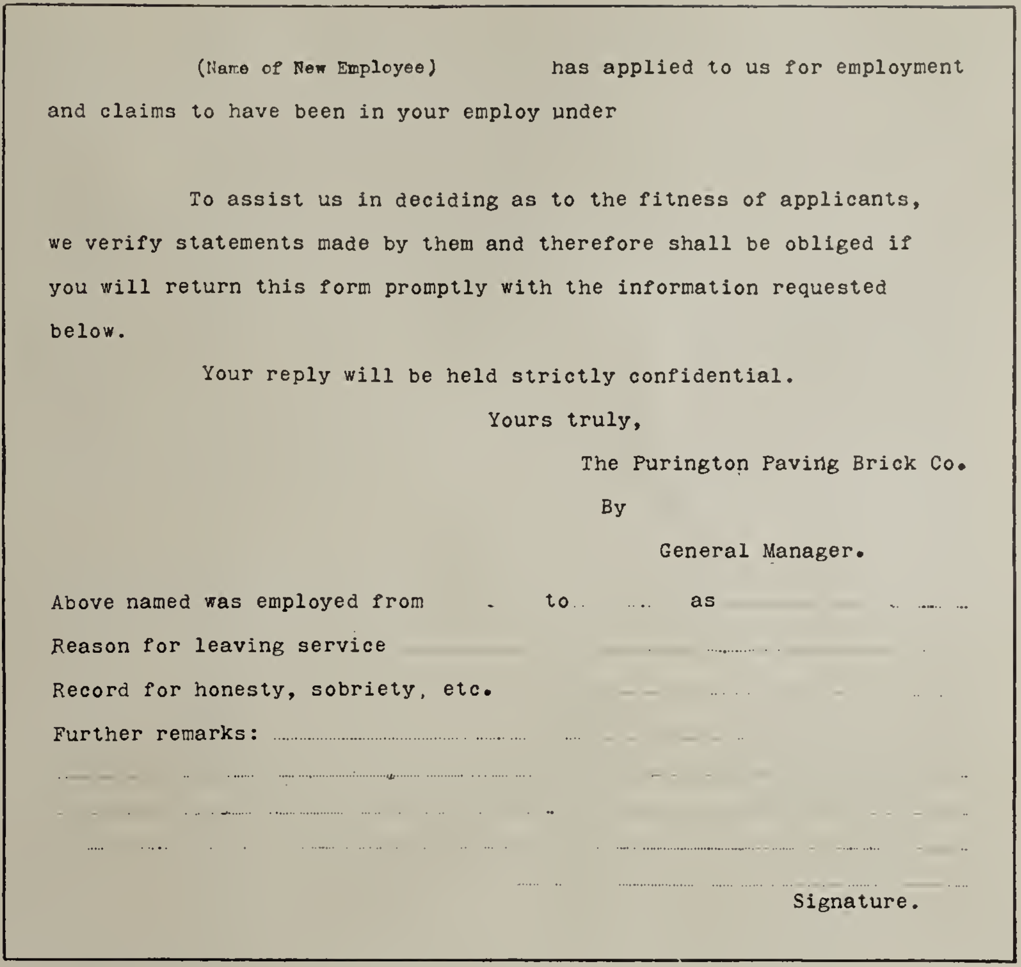
Date	Department	Rate per hr.	Rate per day	Rate per mo.	Remarks

Record From

Reason for Leaving

Form No. 4

Form Letter, Referred to in "The Selection of Men" as No. 2. This is Sent Out on the Company Letter Head to the References Which Are Given by a New Employe and, If the Replies Are Favorable, He is Instructed to Appear Before the Company Doctor for Examination.



(Name of New Employee) has applied to us for employment and claims to have been in your employ under

To assist us in deciding as to the fitness of applicants, we verify statements made by them and therefore shall be obliged if you will return this form promptly with the information requested below.

Your reply will be held strictly confidential.

Yours truly,
The Purington Paving Brick Co.
By
General Manager.

Above named was employed from to as
Reason for leaving service
Record for honesty, sobriety, etc.
Further remarks:

Signature.

AMONG *the* POTTERIES

Domestic pottery manufacturers have not suffered such inconvenience in manufacturing in over twenty years as has been the case this summer, and all thru the actions of the pottery workers as a whole, who have disregarded all ethics and violations of agreements. Since the kilndrawers started to secure an increased wage and went on strike several months ago, other branches of the trade have followed suit, until now an unusual condition is presented. As a result, the manufacturers have been unable to secure anything like nominal production, and the buyers, both large and small, have been unable to secure delivery of orders—altho many of the latter have been on file since the first of the year.

Just at this time the saggermakers—of which there are over one hundred and fifty in the East Liverpool (Ohio) district—have violated their agreement with the National Brotherhood of Operative Potters and have gone on strike. It will be only a question of time until all the eastern Ohio plants are tied up, unless an amicable adjustment of the existing differences is secured. Without saggers, kilns cannot be set. The saggermakers have struck because they want the firm to pay for the pugging of their clay, which now costs them from twenty-five to fifty cents per day. After his help is paid, the saggermaker has left from twenty to thirty dollars a week. In a very few plants, the saggermaker has nothing to do with the mixing of his clay.

On top of this trouble, the manufacturers have been told by the bisque kilnmen that they will no longer carry "green" saggers from the sagger shed. The bisque kilnmen want the firm to pay for the delivery of these new saggers thru the employment of an odd man. Heretofore, the saggermakers and the bisque kilnmen have worked in harmony in taking the new saggers from the sagger shed to the bisque kiln department.

That both of these classes of labor could have accomplished more had they not taken the "bit in their own teeth" is admitted, even by some of their own number. The two trades jumped over the heads of the officials of the National Brotherhood of Operative Potters and, violating their own convention agreement, went as a body to the United States Potters' Association. The latter has an agreement with the brotherhood governing all working conditions for a term of two years, and this does not expire until October, 1917.

The United States Potters' Association, in an official statement issued by Secretary Charles F. Goodwin, outlined its position in these troubles as follows:

"We will stand pat upon our agreement with the National Brotherhood of Operative Potters. We expect the members of the saggermakers' union and other local unions to do the same. We have nothing to consider with the saggermakers as our agreement does not expire until October 1, 1917, it having been signed officially by other employers and employes last fall for a period of two years. The men have broken their agreement in walking out."

The strikers did not notify their national officers that their intent was to strike or to present new demands, but took the "bull by the horns" and went at it alone.

Following a meeting held by the striking saggermakers of the potteries at East Liverpool, Ohio, at which no action was taken in regard to the order to return to work, the National Brotherhood of Operative Potters' officials announced that the saggermakers were no longer members of the organization. The men are waiting to see what further action will be taken by the Brotherhood.

ANOTHER ADDITION TO CHEMICAL PORCELAIN PLANT

Another large addition is now being built at the plant of the Coors Pottery Company, Golden, Colo., as a result of the tremendous business this company has been doing during the past few months. Just recently, when the flood of orders assumed unusually large proportions, the company erected an addition to the plant to enlarge its capacity. Altho this has not as yet been completed, a further expansion, seen to be necessary, has been started, which will be a brick structure, sixty by seventy-five feet, that will house the sagger rooms, grinding room and storage bins. The kiln capacity of the plant has been steadily increased until now the battery consists of ten large kilns. An attractive display of the company's products is being planned for the next meeting of the American Chemical Society, to be held in New York City, September 25 to 30. It is interesting to note that the chemical products made by the Coors company have succeeded in almost entirely supplanting the foreign wares previously used, being considered, in many cases, superior to the imported articles.

POTTERIES FIGHT FUEL COMPANY'S STOCK ISSUE

Protest on the $7,165,125 stock issue proposed by the Ohio Fuel Supply Company to take up a $6,115,125 bond issue and buy up three Ohio gas companies was filed with the state public utilities commission by Attorneys Harrison and Allread of Columbus, and C. T. Marshall of Zanesville, representing eighteen pottery companies in Zanesville, Cambridge, Crooksville and Roseville. The protest is particularly against that portion of the stock issue which is to take up the outstanding bonds. The pottery companies say the bond issue, which was made in July, 1910, represents fifty per cent. of the Ohio Fuel Supply Company's capital stock and was distributed to stockholders in the form of dividends or a bonus. Companies say the stockholders are getting an eight per cent. return on these bonds, which represent no actual stock. By representing this bond issue as acutal capital stock the protesting companies allege the Ohio Fuel Supply Company is able to boost its rates. The Ohio Fuel Supply Company recently announced it had decided to discontinue supplying gas to manufacturing concerns. A hearing on the application for issuance of new stock by the Ohio Fuel Supply Company is scheduled, at which the attorneys for the protesting potteries will present their case.

DOMESTIC COLOR MAKERS AFTER POTTERY BUSINESS

Some chemical companies that have recently turned their attention to making dyes and colors have been interviewing pottery manufacturers with a view to extending this business. It is understood that some American potteries have been using domestic colors for some time because of the difficulty in securing the imported material. There is some doubt, however, as to the success of the American movement, as the importing companies have long held American trade and because of their knowledge concerning the demands of American manufacturers, they have been successful in meeting the demands. The opinion is expressed that the industry here is yet in an experimental stage, and will likely need the aid of foreign workers before it can really be said to have acquired a competitive position.

INTERESTING POTTERY NEWS FROM HERE AND THERE

Three more kilns are to be added to the potteries of Sebring, Ohio. One kiln and a building will be added to the Sebring Pottery Company's plant, and two kilns are to be built at the pottery of the French China Company at that point. These improvements are in addition to enlargements already completed this year, and show the tendency toward expansion in the industry at Sebring. It is stated that other improvements are in project for Sebring potteries, but no formal announcement has yet been made because all plans have not been completed.

The Pfau Manufacturing Company, a leading Cincinnati concern in the plumbing supply trade, is proceeding with arrangements for the construction in Norwood, near its present quarters, of a plant for the manufacture of sanitary pottery. The company has heretofore confined its manufacturing work to plumbers' hardware, purchasing the pottery for fixtures from other concerns, but it will now make all of its own goods in this line. The proposed plant is to cost about $50,000, and will be three stories in height, measuring 60 by 350 feet.

Edwin Lincoln Bailey, one of the best known operative potters of the East Liverpool (Ohio) district, died at his home recently, after a long illness. Mr. Bailey was a skilled potter, and for many years was one of the trusted factory superintendents of the Knowles, Taylor and Knowles Company, after having served in the same capacity for the C. C. Thompson Pottery Company. He came from a family of potters, his father having been largely responsible for the creation and development for a number of years of the famous Rookwood art pottery.

The Garden City Pottery Company of San Jose, Cal., is an up-to-date concern which is alive to its opportunities. D. Raymond, the manager, has arranged for the annual field day of the Pacific Coast Horticultural Society to be held at the company's plant on September 10. The guests will be entertained at the expense of the company, refreshments served, and other provisions made for their pleasure and comfort. The chief attraction will be the demonstrating of the plant's facilities for manufacturing flower pots and garden pottery of various kinds.

The number of operative potters is gradually being increased thruout the various pottery districts, but not as rapidly as the demand for working forces. Manufacturers, however, feel that if they were free to add to the number of apprentices they would be able to so increase their business as to make it an advantage for workmen, but unfortunately the old idea of restriction, which some industries have lost, still obtains to a certain extent among operative potters who seem to fear an overcrowding of their ranks.

The plant of the Jackson Pottery Company, now under construction at Ford City, Pa., is rapidly nearing completion. This plant is being equipped for the manufacture of unusually large sanitary porcelain pieces. C. Fred Sauercisen, formerly in charge of the Westinghouse-Nerst Porcelain Works, has been appointed superintendent of the plant. The offices of the company will be maintained in the Fulton building, Pittsburgh, Pa.

Fire in the plant of the Greenwood Pottery Company, manufacturers of hotel china, Trenton, N. J., did considerable damage recently, before being extinguished. Raymond R. Tams, one of the owners of the pottery, stated that he could make no definite estimate of the loss, but felt sure that it would approach, if not exceed $100,000. This was the second recent fire at the Greenwood, the first occuring about four months ago, when the loss was $25,000.

The attempt to locate a general ware pottery at Massillon, Ohio, has been finally abandoned by the persons back of the proposition made to the local chamber of commerce. Just who the interested parties are has not been made public, but they are said to be well known in the trade and fully responsible. Massillon was interested for a time, but finally the matter was allowed to die down with the result that nothing has been heard of it for some time.

By installing an electric fan in the top chamber of kilns at the plant of the T. A. McNicol Pottery Company, East Liverpool, Ohio, the firm has been successful in gaining from twelve to twenty-four hours in cooling and drawing kilns. This concern is the only one in the district using a fan at present, but other manufacturers are interested in the innovation.

Men employed in the clayworking industry in Mercer county, N. J., took an important part in the parade held in the city of Trenton on Labor Day. Potters, kilnmen, brickmakers, and so forth, were in the line of march and made a creditable showing.

COST ACCOUNTING

for the CLAY PLANT

The Second of a Series of Articles, Outlining a System, Which Includes the First Two Tables. These Should Be Preserved Until the Entire Set is in Hand

By A. J. Huac

A BRIEF AND GENERAL DISCUSSION of the cost accounting system that is to appear in succeeding issues of "Brick and Clay Record" was given in the August 15 issue, it will be remembered by those who are interested in this very important subject pertaining to clay plant operation. This was the first installment of a series of articles in which the system will be outlined and in it was given a list of the tables that are to follow, as well as an explanation of the signs which they will contain and the many advantages of keeping accurate costs.

Two of the tables which are to be used in the operation of this system are given below. They are among the first to be considered in following the process of turning raw clay into finished products, from the very beginning to the end. The first of these is:

DIGGING

The work of this department is to dig or mine the clay which is to be used after it has been stripped and to haul it to the factory for storage or grinding, or for other preparation.

The stripping cost is figured out on another table and posted to line No. 18.

If the clay is hauled by a horse or team owned by the company, the cost of such hauling will be found in the labor item on line No. 1.

The items of "Labor" and "Repairs, Tools and Supplies." were explained in the first article.

"Freight or Hauling" is to cover the expense of hauling clay by wagon or by railroad from the pit to the factory. Almost always this is based on tonnage.

TABLE NO. 1—DIGGING

Line No.	Post From		Post To	
1	T19-I	Labor or Equivalent		
2	T20-I	Repairs, Tools and Supplies		
3	T20-XIV	Freight or Hauling		
4	T20-XV	Royalty		
5	T21-III	Coal		
6	T21-106-XXV	Water		
7	T2-12	Power		
8	(1 to 7)	Operating Total	--------	
9	T23-34	Tons Dug and Hauled	(14)	
10	(8 ÷ 9)	OPERATING COST PER TON	(16)	
11	T22-I	Interest, Taxes, Insurance and Depreciation		
12	T13-9	Superintendence		
13	(11 + 12)	Overhead Total	--------	
14	(9)	Tons Dug and Hauled		
15	(13 ÷ 14)	OVERHEAD COST PER TON	(17)	
16	(10)	Operating Cost Per Ton		
17	(15)	Overhead Cost Per Ton		
18	T11-19	Stripping Cost Per Ton		
19	(16+17+18)	Total Cost Per Ton	--------	
20	See below	Credit Account for Farm, Rent of Houses, etc.		
21	(19-20)	FINAL TOTAL COST OF CLAY PER TON AT PLANT	T16-I	

Line No. 20 to be posted from wherever the information is available.

"Royalty" is an item that is also usually based on the tonnage taken out.

"Coal" and "Water" are to cover the use of these supplies in case of the use of a steam shovel, scraper, cableway or other digging contrivance.

"Power" is to cover the use of steam or electricity from a central station for hauling the clay to the factory. It is especially intended to apply to the use of a hoisting engine.

"Tons Dug and Hauled" is to be posted from the production sheet for that department (to come).

"Interest, Taxes, Insurance and Depreciation" are totaled into one item. The method of arriving at this charge is shown in table No. 22 (to come).

"Superintendence" is divided into the proper items in table No. 13 (to come).

The "Credit Account for Farm, Rent of Houses, etc.," is intended to cover any credit or income from the use of the clay land or property. In cases where the land has coal which is mined or dug, the cost of it can be figured out by using a duplicate of table No. 1 for digging coal, and posting to line No. 20, but the better method is to operate the coal mining as a separate department, using a duplicate of table No. 1, and charge the cost to the department in which the coal is used. Some managers prefer to sell the coal to the factory or department in which it is used at the market price for that grade of coal. In this case the coal mining department will show a profit of its own.

POWER

The work of this department is to supply the power necessary to manufacture the clay into marketable condition.

"Labor" and "Repairs, Tools and Supplies" are identical with the items explained in the general article and in connection with table No. 1.

"Fuel," "Water" and "Electric Current Purchased" are to cover these items as consumed in the power house or engine room of the plant, which is used by more than one department.

"Interest, Taxes, Insurance and Depreciation" and "Superintendence" are explained in tables No. 22 and No. 13 (to come).

Power is divided in direct proportion to the horsepower hours used by the different departments.

TABLE NO. 2—POWER

Line No.	Post From		Post To	
1	T19-II	Labor or Equivalent		
2	T20-II	Repairs, Tools and Supplies		
3	T21-IX	Fuel		
4	T21-107-XXV	Water		
5	T21-107-XXVI	Electric Current Purchased		
6	(1 to 5)	OPERATING TOTAL..........	....	
7	T22-II	Interest, Taxes, Insurance and Depreciation		
8	T13-11	Superintendence		
9	(7 + 8)	OVERHEAD TOTAL..........	....	
10	(6 + 9)	TOTAL COST OF POWER	(29)	
		Divide as follows:		
11	T24-I	Digging—Monthly Percentage		
12	(10 x 11)	Digging—Monthly Total	T1-7	
13	T24-II	Preparing—Monthly Percentage		
14	(10 x 13)	Preparing—Monthly Total	T3-3	
15	T24-III	Making—Monthly Percentage		
16	(10 x 15)	Making—Monthly Total	T4-3	
17	T24-IV	Drying—Monthly Percentage		
18	(10 x 17)	Drying—Monthly Total	T5-3	
19	T24-V	Setting—Monthly Percentage		
20	(10 x 19)	Setting—Monthly Total	T6-3	
21	T24-VI	Burning—Monthly Percentage		
22	(10 x 21)	Burning—Monthly Total	T7-3	
23	T24-VII	Emptying—Monthly Percentage		
24	(10 x 23)	Emptying—Monthly Total	T8-3	
25	T24-VIII	Loading—Monthly Percentage		
26	(10 x 25)	Loading—Monthly Total	T9-3	
27	T24-IX	Stripping—Monthly Percentage		
28	(10 x 27)	Stripping—Monthly Total	T11-5	
29	(10) Also (12 +14+16+18 +20+22+24 +26+28)	TOTAL COST OF POWER		

N. B. All figures in lines Nos. 11, 13, 15, 17, 19, 21, 23, 25 and 27 to be in red ink.

The line covering power for drying is to be made use of when fans are employed to force hot air into the drier or draw out the exhaust. When exhaust steam is used for drying a charge should be made therefor. This is explained in table No. 5 (to come). If boilers are operated at night for no purpose except to dry the ware the entire charge for labor, fuel, supplies and so forth, as well as part of the investment, should be charged to the drying department.

Power for "Setting," "Emptying" or "Loading" is used when a power driven transfer car or a power driven brick conveyor is used.

Power for "Burning" is used when forced draft or pressure for oil is employed.

Power for "Stripping" is used when electrical power is transported to the stripping machine.

When electric lights are used there should be a charge for each department in addition.

* * *

"Bob" Queisser Heads Recruiting Stations

Captain R. L. Queisser of the Machine Gun Company, Fifth Ohio National Guard, but who in private and business life is known to Ohio brickmakers as head of the Queisser-Bliss Company, Cleveland, Ohio, is now in charge of the recruiting stations at Cleveland and Ashtabula, Ohio, renewing efforts to increase the membership of his regiment. Captain Queisser is not the only brick representative connected with the preparedness program. Charles F. Queisser, his son, is first lieutenant and battalion adjutant, and Robert L. Queisser, another son, is second lieutenant in Company M, of the same regiment. They now are on their way to the border from Columbus, where they have been stationed the past few weeks.

It is believed by their friends that the Queissers hold a record for the number of officers from one family in a regiment.

Ohio Prison Board Circumvents the Law

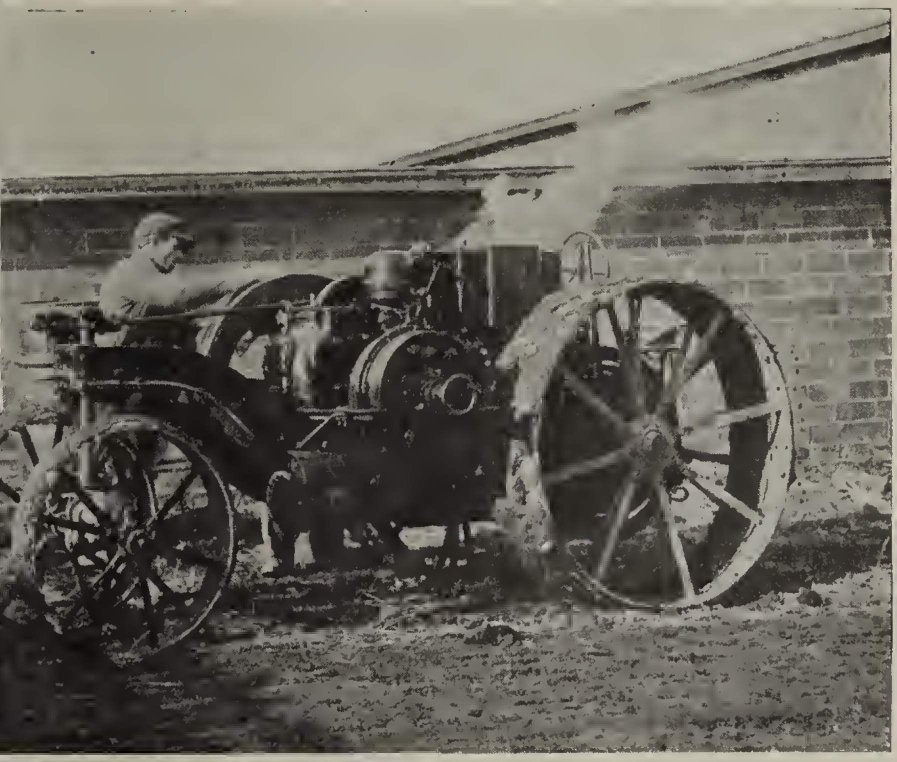
The Ohio Board of Administration, which has charge of the state brick plant at Junction City, has at last found a method of circumventing the law, in spirit, if not in letter, and selling the product of the plant.

In all about one hundred prisoners have been employed at the plant and a large supply of brick was on hand up until very recently. Many of them were pavers, which were often refused by contractors and municipalities, because of the fact that the law required that all prison-made goods must be conspicuously marked. It had been the custom to have the marks made in the brick by a die or other method. However, in looking up the law, it was seen that the mark need not be permanent, and consequently the board secured a rubber stamp "Prison Made" together with several gallons of blue paint, and went to work marking each brick in that manner. The first rain, of course, washed all of the marks off, and the great objection to their use was removed.

Since that has been done the Board of Administration is flooded with orders, as the brick are sold cheaper than can be purchased from legitimate manufacturers. The solution of the difficulty is credited to H. S. Riddle, who has charge of the various manufacturing and sales departments of the Board. It is announced that an order for 280,000 pavers was received from the Ohio State University for the building of a tunnel, and 100,000 for the Wooster (Ohio) experiment station.

REPLACING PIT HORSES *with an* IRON STEED

An 8-16 h. p. Kerosene Tractor That is Saving Money for the Mason City (Ia.) Brick and Tile Company. It Works Faster than Horses and Is Much More Powerful.



This Tractor is Replacing Two Teams Formerly Used in Hauling Strippings Around the Top of the Shale Bank, and is Doing Twice as Much Work at Half the Initial Investment of the Horse-drawn Equipment.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

FACE-BRICK SALESMEN: GET BUSY IF YOU SEEK FAME

I want to give a warning to the face-brick salesmen of the country. It is my guess that if they have not already made a record for themselves in moving their product, they will have to hurry.

The day is coming when it will be as easy to sell face-brick to the home builder as it is now to sell gunpowder and shells to the Russians, and when it will be proportionately as hard to gain recognition thru selling this product. A man will have no chance to make a reputation as a salesman in the face-brick line after the real flood of business gets started. For years, a few of us "old veterans" have been plugging at the game, taking off a convert here and there and all of us know that it has been no easy job.

In the past, the prospective builder came into the brick display room to buy a few mantel, or fire-place brick, or possibly enough for underpinning. If the salesman tried to talk an all-brick house he had to meet a big argument that has been built up for centuries by the lumber interests. And it took a pretty wise salesman to answer all of the questions that were put to him, especially those propounded by Mrs. Prospective Builder, who usually comes along on these occasions.

Possibly the salesman thought he had done a pretty good job and that he had the prospect fairly won over to the cause of permanent brick construction, but he failed to recognize another element that played a vital part in the drama of building in those days. As tho he had received his cue, the carpenter-contractor would appear upon the stage and that evening, make a call upon Mr. and Mrs. Prospective Builder. He usually brought along a couple of cheap cigars, patted the baby upon the head and made a hit with the mother. Before he left they were all signed up to have him build one of those quick and ready frame "things."

The fact that this particular home builder went on for the rest of his life paying paint and repair bills, never knowing the comfort of a well-built home that was warm in the winter and cool in the summer time, had little or no effect upon the next prospect who came along. He went thru the same experience, quickly passing thru the fingers of the brick salesman and eventually giving the carpenter-contractor, who was on the job first, last and always, an order for another one of his frame structures.

Now, however, it is becoming different. It is getting noised about that it really is cheaper in the long run to build with brick. It is no longer necessary for the brick salesman to make his argument to every prospect who comes in, altho there are still many who remain to be converted. And the day is not far distant when wood will cease to be used as an exterior material for buildings of any type. This change of conditions will open up a brick market that it will be no easy matter to supply. Since, as a matter of fact, it is entirely a question of educating the public to think in terms of fireproof and permanent construction and a great deal of educational work is being done thruout the country to prove to the people that it really is economy to construct this type of building, I believe that the afore-mentioned condition is rapidly approaching.

While, under the coming state of affairs, it will be easier for the brick salesman, yet, as I have warned, hard hitting peddlers will not be required. So again I say to the fellows in the brick trade, earn your spurs now while there is a chance. Be one of the crowd to hasten the day of the all-brick age. Don't let any prospect leave your office before you have given him every argument you know of for an all-brick house. Convert that order for two or three thousand mantle or underpinning brick into an order for twelve or fifteen thousand by winning the builder away from wood. He will like you better for it when it is all over and you do not need to be told how that will make you stand with your employer. It can be done, boys!—*by William H. Gifford, Salesmanager Brick Department, Wisconsin Lime and Cement Company, Chicago, Ill.*

SPICY SUGGESTIONS FOR THE SALESMANAGER

Swapping Dollars to "Hold Trade"

"Yes," said a brick manufacturer recently, "we are enjoying a profitable out-of-town business, but the city trade is not very good. There is so little building right now and competition is so keen that it is a matter of swapping dollars to hold our trade. We are not able to figure much better than cost on our city business right now."

Here is another brickmaker who is subscribing to the theory that if you sell a man brick at a low price today because business is poor, you can sell him the same brick tomorrow at an advanced price because business is good.

Does it pay to cut a price in order to hold trade? Does it hold trade to cut the price? These are questions to which there will likely be as many answers as there are individuals in the brick business, the answers differing in degree and depending on what the seller may think are the exigencies of the occasion.

The man who makes a standard commodity for sale is entitled to a reasonable profit. He should first of all know his costs and know them absolutely. That is the best treatment that has ever been devised for the pernicious habit of cutting prices. The man who does not know his costs does not know what his price ought to be and does not know when he is cutting. If a group of manufacturers and dealers competing for business in the same market, would first make a study of production and selling costs, they will be very likely to abstain from ruinous price-slashing.

Does the man who buys the brick cut his prices to his customer on the job he is doing? Or is he merely taking advantage of the disposition of the brick man to weaken? And is it worth while losing a profit on a sale in order to "hold the trade" of such a customer? The bargain-hunter gets the habit very quickly and the habit grows by what it feeds on. Presently there may be a stock of brick of a bankrupt concern thrown on the market, still further to demoralize prices. That is the logical end to a course of price-cutting to "hold the trade."

Business without its legitimate profit is not worth having. Might as well not turn a wheel as to come out at the end of the month with nothing to show for the effort.

At least, let the customer who buys at the short price understand thoroly that he is getting treatment that is not fair to the brickmaker and that the concession is made with understanding that the full-price business of such a customer is to be given to the dealer. That would at least serve to impress on the customer the fact that the brickmaker is not doing business with his eyes shut and that he wants the purchaser to understand that he is getting a special concession.

Don't Carry Competitive Lines

The watchword of one of Chicago's most successful face-brick salesmanagers—a slogan that has served to increase sales and render better service to the manufacturers whom he represents—is "don't carry competitive lines." By this is meant that every panel of face-brick in a sales office should have a characteristic appearance that separates it from the rest of the brick—that no two panels should be so similar that one draws from the sale of the other.

Particularly important does this principle become in the selection of new lines. If you are a dealer and are carrying in your stock a rough-textured face-brick for which there is a good demand and the manufacturer of that brick has given satisfactory treatment, it would be a poor policy, in the eyes of this salesmanager, to accept another brick that is very similar to the one being carried. By so doing, the sales of the original brick might be decidedly decreased, without swelling the total sales. As a result, the manufacturer whose product has been partly replaced becomes dissatisfied and feels that he is not receiving as good representation as he should. The dealer himself is unable to get the same high quality service from the manufacturer and helps himself in no way that is important enough to offset the dissension caused by the newer brick.

There is also a possibility that the manufacturer of the new line is unable to render as good service as was the first, and is not as reliable. In this case the retailer does himself a decided injury.

Make the Contractor a Friend

A certain face-brick salesman not long ago was pleased, one day, to hear a well-known building contractor "boosting his game" in a discussion with the architect of a job he hoped to land. Eventually he did land it. He liked the contractor first rate and the contractor was a good builder, but he could see no particular reason why the latter should have formed such a warm attachment for him.

He did not get a clue until some time later, when he heard that the same contractor had been knocking a certain other line of face-brick. Then he began to go over in his memory the dealings which he and the other sales representative had with the contractor. He went back several years and reviewed jobs they had contested for. After some study he discovered that on nearly every job the contractor handled, where the competing salesman landed the order, there had been delays in delivering the material. Looking back on his own, he was able to note with pride that deliveries invariably had been made promptly. In other words one of the best ways to lose the good will of a contractor is to make him wait for his order, and one of the best ways to get his good will is to keep him supplied with the materials he wants. That was the answer—the contractor in question could say nothing good about the slow-delivery salesman's materials.

It is always desirable to have good friends among the contractors. In the first place, they buy much of the material they use and, secondly, a good word from them will have weight with the owner or architect. And one of the best ways to "get next" to the contractor is to give him the supplies he wants when he wants them. The better class of contractors will appreciate service and they are not looking for unfair advantages or for take-outs. The contractor who can be bought by a brick salesman will "sell out" the brick man just as readily. He and his friendship are not worth cultivating.

Replacing the Wooden House with Brick

Every time a wooden structure, of which there are large numbers still going up, is utterly destroyed by fire, a prospect is created for the local brick manufacturer or dealer. Anybody knows that the building which is described as "frame, shingle roof" is a poor risk compared to the building of "brick, tile roof." The comparative immunity of the latter class of buildings from fire is well known, even without a comparison of the insurance rates.

The presumption would be that immediately news is received of a fire which destroys a frame structure, the brick men in the vicinity would get busy "boosting" for rebuilding in brick. Yet this is not done, or if the matter is followed up, is not done as vigorously as might be, as is proven by the large number of owners who replay burned frame structures with wood. There is a reasonable probability that in many of these cases the brickmaker or salesman failed to land the business for the simple reason that he did not go after it as well as he knew how. Of course, that is a good reason why business men in other lines fail to get lots of lost business, and the proposition resolves itself into a recommendation that the brick man merely keep working. That is necessary, also, but it is also important that the effort be directed at something definite, as in a case such as is suggested.

Get after the man who must rebuild. Relative building costs are not such as to handicap the brick man and in this day, when fireproof construction is so well understood, the assurance that a building so constructed will stay built is something that should lead to a sale, at least where the builder is a man with a substantial backing.

In any event this going after every prospect is one way of keeping everlastingly at it and the direct and indirect good that will be done by that means is too great to be measured.

Let the Customers Sell to Themselves

To a great many people building a house is an event of much importance. Before Mr. and Mrs. Homeseeker get to the point where they decide to build, as a general rule they will have come pretty near deciding, almost to the last detail, what kind of a house they will build. They have probably subscribed to some of the house and garden magazines, they have inspected homes wherever they have gone, they have read up on houses and home building in books from the public library, they have thought and talked and dreamed about their new home for months, if not for years. In other words, when a man and his wife come into your display room to make their purchase they have a definite idea of what they want.

This suggests that the right way to meet such customers is by inquiring as to what they have in mind. In fact, that is one of the best ways to sell anything. It is, in the first place, a subtle kind of a compliment and any prospective customer will feel that the dealer sees he (the customer) knows something about brick. Where a dealer, on the other hand, begins to "boost" brick in general and then goes from one brick to another, "boosting" all the time, the customer is going to be pretty sure to feel that the dealer has taken him to be altogether ignorant about brick.

If, after the customer has told all he knows about brick, as he will speedily do when encouraged, the dealer wishes, he may give a lesson in good grace, and it will be received, but he can feel pretty sure that the customer has already decided on the brick before he calls. He has sold himself a brick house, so far; let him go further under your direction and sell himself a brick house to be made out of a special type of brick you are displaying. If he finds the brick by himself, the kind of brick he has seen in his dreams, he will think all the more of it. Keep up with him, but if he is intelligent and seems to know what he wants, don't try to drag him to conclusions.

Look After the Protection of Tile Outlets

A system of tile drains is useless unless it does what it is designed to do. That is beyond a doubt. It is out of sight and, therefore, is not ornamental and no land owner pays for that kind of improvement merely to indulge some friendly tile salesman in his wish to make a sale. Nor does the salesman or the drainage engineer who sells the tile and supervises its installation, sell only a few carloads of four, six, eight and ten-inch clay tile. What he sells is principally a drainage system, that will lower the water table, prevent surface erosion, draw off the surplus water and enable the farmer to get on his land sooner after a wet season than he could before.

If the drainage system does not work, not only this year but next year and the years after that, the land owner and his neighbors are pretty sure to stand up in a grange meeting and say that the tile salesman unloaded a lot of "bunk" on his customer. The tile may have been the very best on the market, and all that, but if the drainage system does not perform its task, tile drainage is going to get a "black eye" in that immediate district for some time to come.

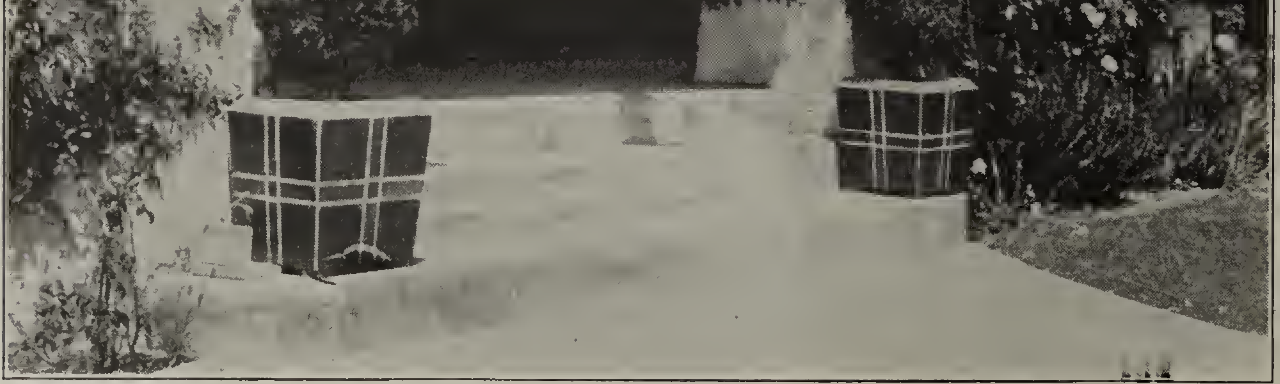
Kentucky papers, for instance, have been carrying news paragraphs to the effect that the drainage system on a farm in the western part of the state ceased to carry off the excess water. The owner happened to be a man of discernment and conducted an investigation which disclosed the fact that a muskrat had invaded the system, effectually stopping it up.

The principal trouble in this case was that the outlet of the system had not been properly guarded. The man who supervised the laying of the tile must shoulder the blame, for he either failed to insure a permanent protection at the mouth of the system or he failed to impress upon the owner the necessity of making sure of such protection.

In the average case, it is quite possible the tile system would have been neglected altogether and no search made for the cause of the trouble. There are many miles of perfectly good drain tile two feet under ground that are choked full of silt and useless altogether, for the simple reason that the outlets of the systems failed to get sufficient attention. And the onus of unsuccessful operation falls on tile.

In the light of these facts, therefore, it would seem that a little effort on the part of those who are in charge of the sale of drain-tile to see that the outlets of drainage systems for which they have sold the tile are protected against the entrance of small animals, would be a good investment.

MANTEL TILE USED *to* MAKE SHRUB HOLDERS



A Los Angeles (Cal.) Tile Worker Believes There is Nothing Like Gathering Up the Fragments and Putting Them to Work.

In Line with This Belief, He Has Made the Handsome Pair of Tile Shrub Holders, Shown in the Accompanying Illustration, for His Home.

These Tile Were Left Over from a Job and Were Considered Too Valuable to be Thrown Away. Therefore, Their Use as Shown.

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

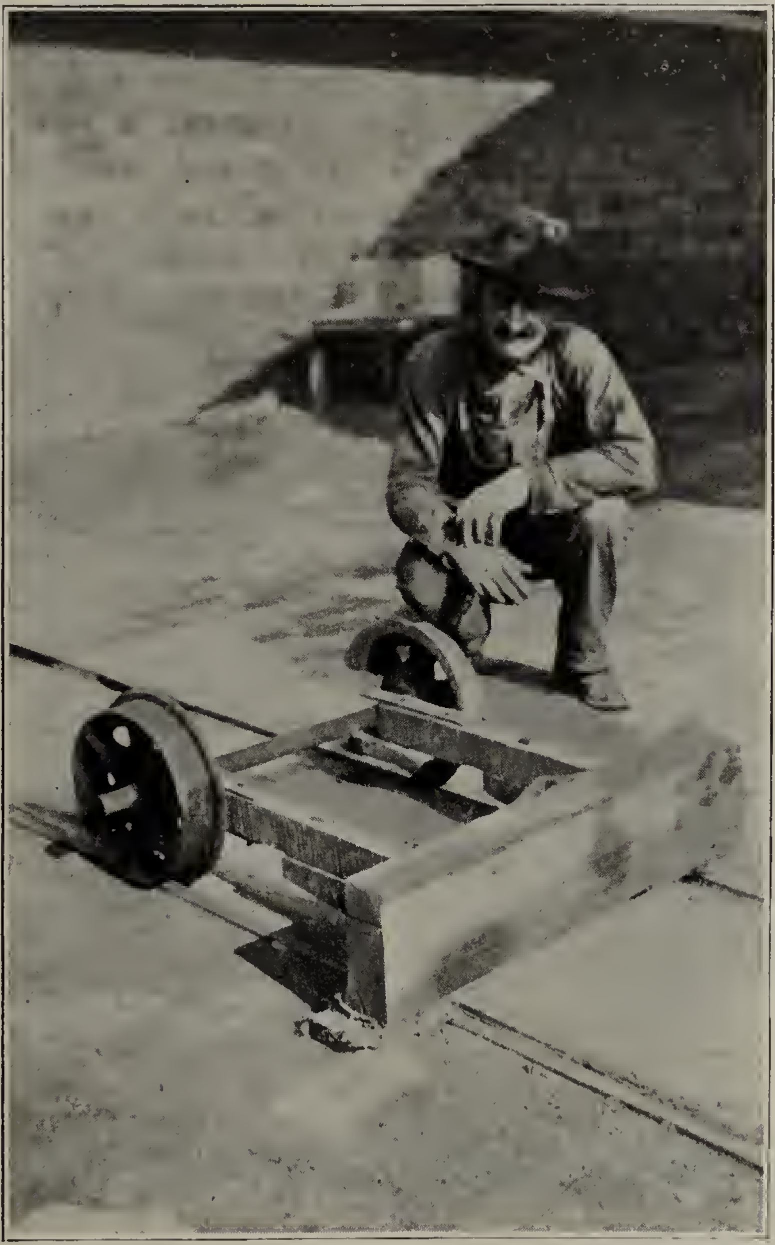
An Effective Brake for Drier Cars

Drawing out a loaded car from a tunnel drier is at best a difficult, and sometimes a dangerous operation. In most cases, the tracks of these driers are inclined slightly toward the discharging end and, when the placing of a load of "green" ware into the receiving end or the withdrawal of a car of dried material from the discharging end is attempted, a whole column of cars is set in motion. The momentum obtained is enormous and requires much force to be overcome.

On the great majority of plants the means of stopping a train of heavily loaded cars consists of a long pole that is placed between the front axle and the floor or ties. While this method is effective, yet it is cumbersome and dangerous, many accidents being attributable to this practice.

The device illustrated in the accompanying photograph, however, obviates a large amount of the trouble usually experienced in this connection, and is another of those "kinks" taken directly from the plant that serve to facilitate many operations in the business of manufacturing clay products.

It consists only of a "shoulder" and two "arms." The "shoulder" is made so that it is slightly lower than the first "deck" of the drier car and is held a distance of a few inches in front of the car by means of the "arms." Spanning across the track, it has two "shoes," covered with cloth, that rest upon the rails. The "arms," which are fastened securely to this "shoulder," run back under the car until their fork-like ends fit the front axle. These ends are made by fastening a piece of metal, the width of the arm-piece, on both the upper and lower side of the "arms," allowing them to protrude outward for three or four inches. A space equal to the height of the arm-pieces, left between the ends of these metal pieces, allows the axle to slide in between the two pieces. This makes it possible for the brake to be held in a firm position while the pressure of the cars is exerted against it when the brake is being applied.



Showing How the Two "Arms" of the Home-made Drier Car Brake Connect Up with the Front Axle of the Car, When Put in Operation. The Pole or Handle Has Been Removed in This Illustration

In drawing out a drier car this device or brake is slipped under it until the arms embrace the axle, and then the column is started. When it is desired to stop the cars, a slight downward pressure on a pole that has been placed between the top of the shoulder and the bottom of the car, produces sufficient friction, by the pressure of the cushioned shoes against the rails, to quickly and effectively bring the line of cars to a halt.

The brake is very easy to make, requiring little in time or trouble for any superintendent or workman to put it together, and it finds a very wide use in the industry since tunnel driers are common.

If you are one of those who find this item to be of help, why not send in that "kink" of yours that has saved you considerable trouble and possibly has been the means of bettering your product? "Brick and Clay Record" is anxious to receive such items for this department and will pay for them.

Soot and Its Relation to Fuel Waste

The accompanying chart (on the following page) is designed to show instantly the percentage of fuel wasted when soot is allowed to accumulate to any depth in boiler flues.

For example, the dotted line drawn across the chart shows that where the inside diameter of the flue "D" is four inches and where the inside diameter of the soot "d" is three inches, the fuel loss is forty-four per cent.

In using this chart, therefore, it is only necessary to lay a straight edge across the proper points on "D" and "d" and the point of intersection with the right hand column indicates the percentage of fuel wasted.

To prove that the chart is accurate, let us take a case where "D" equals two inches and "d" equals two inches, that is, where there is no soot. The fuel waste is zero. Next try "D" as being equal to three inches and "d" the same. The fuel waste is again zero. On the other hand, when the soot

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One Man Operates it—We Can Show You How
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IF YOU HAVE A WANT
Make it known in "Brick and Clay Record's" Classified Columns, and get results.

is real thick the fuel waste runs up very high indeed.

Soot should never be allowed to accumulate on boilers. Having heat insulating properties that are five times as great as those of asbestos, universally recognized as a good insulator, it acts as a very effective barrier to the passage of heat thru the flues. According to Kent in his "Mechanical Engineers' Pocket Book," soot is almost as good an insulator as loose wool and live geese feathers—probably the two most effective heat stoppers known to man.

The principal reason why soot causes such heavy wastes is that it gets in between the fire or hot gases and the boiler shell or flue. That is the very place in which there should be no insulating medium at all because that is where an insulator can do most harm. It has been shown in carfully conducted tests that an insulator between water and metal is not so effective as between gas and metal. Hence, a given thickness of scale inside a boiler is not nearly so serious as soot in the flues. Soot shuts off the heat at the very source. It doesn't give the heat a chance to even touch the metal of the boiler.

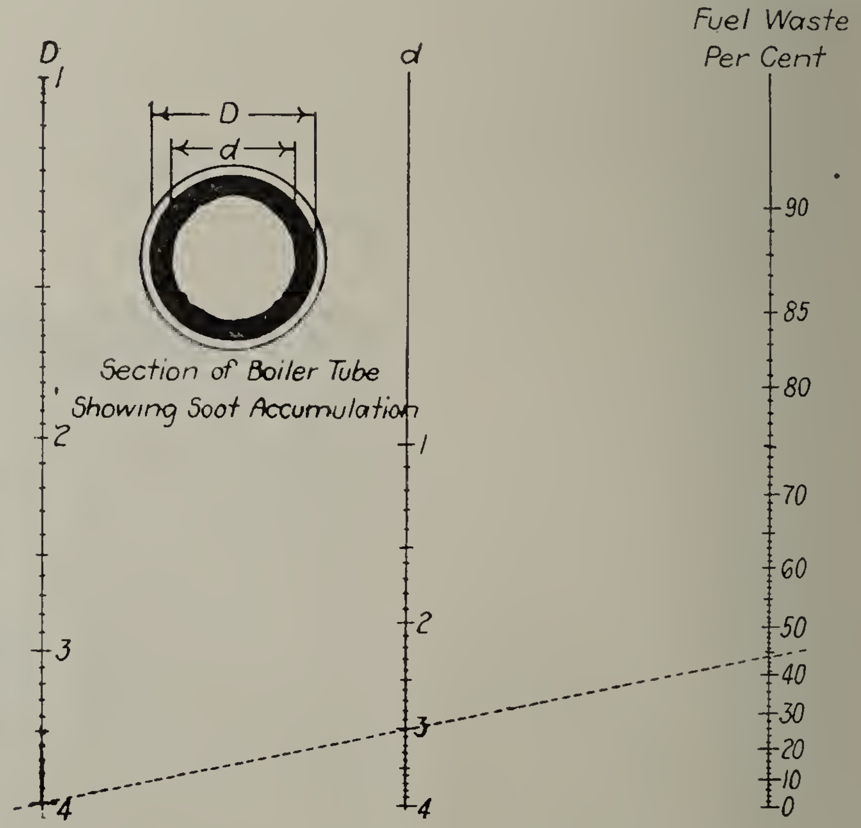

Chart By Which It Is Possible to Determine the Per Cent. of Fuel Wasted Due to Soot Accumulation on the Boiler Tubes

Soot is therefore a creator of inefficiency and at the same time a reducer of boiler capacity. By keeping soot off of boiler and flue surfaces a boiler can be "forced" with much better effect than where soot is permitted to accumulate. This can easily be proved to your own satisfaction by taking temperature readings of the flue gases. Tests have proved time and again that where soot is kept blown off in a thoro manner, the average flue gas temperature is materially reduced. Boiler efficiency, you see, can be measured very nicely and with considerable accuracy by merely taking the flue gas temperature.

In these days of soot blowers of many makes a boiler owner should have no difficulty in securing a type that fits his conditions best. They are made to fit any type of boiler and are either hand or mechanically operated.

As for the cost of soot, after using this chart and determining approximately the per cent. of fuel waste at present in your boiler room, multiply that percentage by the yearly cost of your fuel. The product will be the yearly cost of the soot.

For example, if the chart shows the loss to be fifteen per cent. and if you spend \$5,000 per year for your coal, the yearly cost of soot is \$5,000×0.15=\$750.—*N. G. Near.*

Tempering and Annealing

An engineer is often called upon to make various tools and parts of machines which require a knowledge of tempering and annealing the various common metals.

Steel is roughly divided into four classes, according to the percentage of carbon contained and its capacity for being welded: Soft steel, which is not temperable but is easily welded; medium steel, which takes a poor temper and is weldable; hard steel, which is temperable and welded with difficulty; and very hard steel, which takes a high temper and is not weldable.

A tool of hard steel that requires shaping in a machine or filing should first be thoroly annealed. To do this, heat the steel slowly and evenly to a dark red, then cover with ashes or powdered lime to allow it to cool slowly—the slower it cools the softer it will be. A quicker way is to use the water-annealing method. To do this heat the steel as before and hold it in a pair of tongs until all color is gone or so that when rubbed with a piece of clean pine it will no longer char the stick, then immerse it in a bath of cold water. It is now ready to be machined. Annealing weakens steel slightly, but renders it better able to stand shocks.

To temper or harden tool steel, heat it slowly and evenly to a red heat for about two in. from the cutting edge, then immerse it in a bath of cold water or oil to a depth of 1½ in. until the point is cold. Take the tool out of the bath and polish the scale or coating from the point with a piece of emery cloth or other abrasive, then wipe the surface with a piece of oily waste. Watch the polished surface as the color comes down from the hot shank. When the edge has reached the desired color, which can be learned only by experiment and test, immerse the entire tool in cold water. As a guide it is to be understood that the darker the color the softer the edge will be. The last operation is known as drawing. The proper color is to be determined then, by the use for which the tool is intended.

Soft or medium steel that will not take a temper can have its surface hardened to a depth of about a hundredth of an inch by casehardening. This is done by heating the steel to a dark red and placing cyanide of potash on the part to be hardened, then putting it back in the fire for a few minutes so that the cyanide will be absorbed by the hot steel, and plunging it in a bath of cold water.

Copper and brass may be annealed by the opposite means to that used for steel—that is, by heating to a dark red and plunging into cold water or allowing it to cool in the air. If brass is heated too hot, it will fall to pieces. If properly done, brass and copper can be annealed many times without injury.—*A. B. Hervey in "Power".*

Danger of Allowing Children Around a Plant

The danger of allowing children around plants or factories of any kind was recently demonstrated at Maysville, Ky., where a ten year old boy lost some toes in a clayworking machine at the plant of the Spahr Pressed Brick Works. The boy had brought his father's dinner to him and was sitting near the machine with his feet dangling while he was waiting for the noon whistle to blow. His foot caught in one of the cams of the machine, resulting in the accident which probably would have been more serious except for quick action on the part of an employe who shut off the power.

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Silence—Safety—Simplicity—Smoothness

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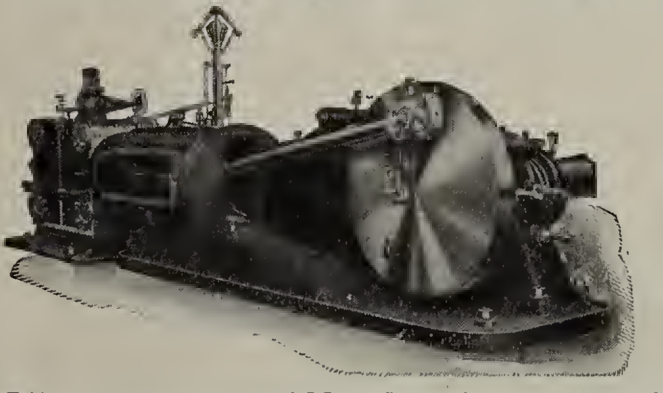
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



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No. 65-B

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THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

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BEST MEANS BUCKEYE

All Sections from
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per yard

Write or
wire us,
when in need.

No order too large to handle promptly or too small to secure immediate attention.

Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

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for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

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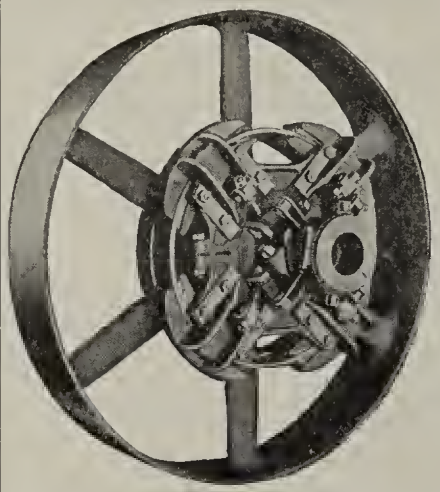

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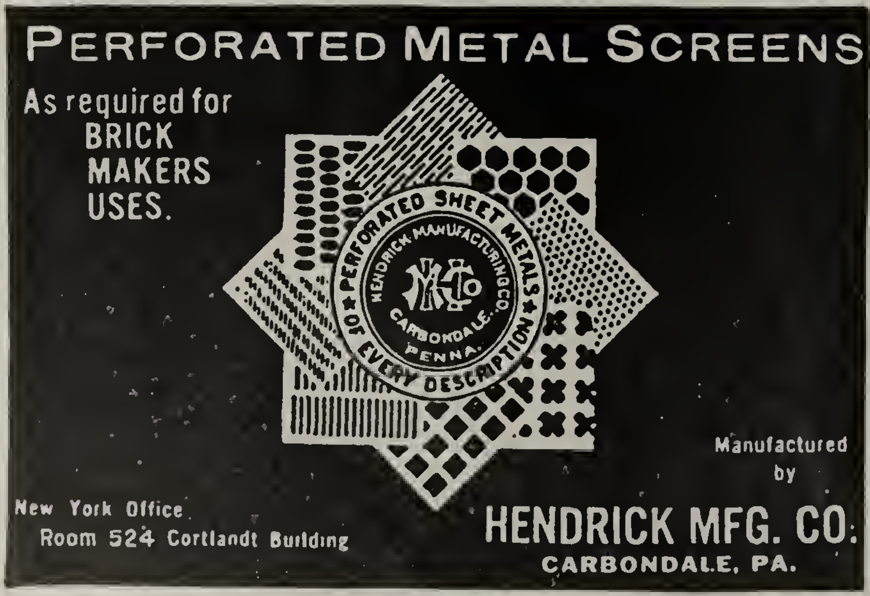
That's the kind you get when you order the

YOUNGSTOWN

Made of the best steel right in the heart of the steel district, and also where there is constant contact with some of the best clay plants in the world.

Let us figure on your requirements.

The Youngstown Steel Car Co.
YOUNGSTOWN, O.



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As required for BRICK MAKERS USES.

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CARBONDALE, PENNA.

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Manufactured by

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QUESTIONS

A Two Cent Stamp May Bring
You Advice That Will Stop
a Waste, Improve Your Ware
or Lower Your Production Cost

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Green Scum Forms on Silica Brick

761. *Pennsylvania—We are engaged in the manufacture of magnesite brick, the following ore being used:*

Iron	64.95 *per cent.*
Silica	3.57
Alumina	.90
Lime	3.40
Magnesia	.50
Phosphorus	.75
Sulphur	.03
Manganese	.04
Titanium	.02

And the analysis of the magnesite used is as follows:

Silicia	.75 *per cent.*
Alumina	.38
Iron	.11
Lime	.04
Magnesia	47.18
Carbon Dioxide	51.87

These brick are boxed-in in the kiln with silica brick, the analysis of which is about ninety-eight per cent. silicia and the balance iron, alumina, lime, magnesia and a trace of alkalies.

The trouble is that a light green scale is deposited on the silica casing brick during the burn and that they seem to be attacked by some element causing them to disintegrate, becoming brittle and wearing out fast.

My solution is that the lime in the magnesite unites with the phosphorus, forming phosphate of lime. What is your opinion?

Upon our request, our correspondent sent us a sample of the green-coated magnesite brick. This was submitted to a high authority for an opinion, which is as follows:

"Allow us to state that the green scum appearing on specimens of silica brick which you sent us and which are used for backing-up magnesite brick, appears to be due to iron oxide which has vaporized from the material being burned. At the same time, this scum appears to contain magnesia, which also has been derived from the magnesite brick, as you perhaps understand. At the temperatures reached in burning these brick, iron oxide becomes very volatile and may be collected in almost any part of the kiln. It would be especially attracted by silica brick and hence would be very apt to condense on the latter."

Wants to Prevent Cross Lamination

Illinois—We are making a stiff-mud, machine-made firebrick, using an old goose-neck sewer-pipe press and a semi-automatic cutting table. We are getting excellent results, except that the brick show a cross lamination—that is, the 4½-in. way of the brick. We run our column flat, 9-in. wide

and ANSWERS

Best Authorities in Every Clayworking Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns.

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

---

by 2½-in. high, and set the wires in our cutting table 4½-in. apart. We will be very grateful if you can tell us a way out of this difficulty, which is apt to cause us a great deal of trouble, especially when the brick are exposed to slagging action.

Not having had any experience with the goose-neck type of brick machine, we submitted the above question to a manufacturer who has operated one, making paving-brick with considerable success. This reader has sent us the following reply which may contain information of value to our correspondent:

"We have been making paving-brick successfully with a goose-neck for almost thirty years. Our brick, however, are end-cut, while those of your correspondent are side-cut. We experience some trouble, of course, from lamination, just as all other brick manufacturers do, but with us, it is no more serious than with them, who use, for the most part, horizontal machines. It is seldom that the laminations in our brick interfere seriously with the abrasion test.

"We have experimented with die liners in an effort to diminish lamination to a minimum. We know of no other way of remedying this defect, except that of mixing clays. Unless it be for a side-cut brick, we would suggest that the stream be made one and one-half inches wider than the width of the finished brick and then by means of a wire, cut three-fourths of an inch from each side of the stream. We have known instances where this plan has benefited the ends of the brick very materially. It eliminates much of the die lamination near the end of the brick. Our experience in manufacturing paving-brick from fire-clay with a goose-neck has convinced us that, for that material it is superior to a horizontal brick machine. We have tried both. A goose-neck is not a success with shale."

While, as above stated, this manufacturer is making an end-cut brick, while that of our correspondent is side-cut, nevertheless, particular attention is called to the second paragraph of the reply which is quoted. This refers to his decision regarding the only ways in which lamination can be avoided.

Eliminating Clinkers in Scove Kiln Fire-boxes

791. *Tennessee—I am using the old-time, up-draft type of kiln, measuring twenty-one feet inside width and with twenty furnaces on each side equipped with grate bars. I am having a great deal of trouble with clinkers and to keep them cleaned out is more than any man can stand. I use a good grade of lump coal, watersmoking with coke. Of course, I do not get any clinkers from this last-mentioned operation until along toward the end of the period when I put up the dampers. Have you anything in your back numbers treating on burning with this kind of kiln which would*

Boss Ten Hour DRYER
The only tender clay dryer on the market

Boss System of BURNING BRICK
Will easily cut your present fuel bill half in two

COMMON SENSE APPLIED TO
Drying ORIGINAL Boss SYSTEM **Burning**
Write today for a catalog

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Monger Building, - Elkhart, Indiana

Sure Protection Without Cost

That's what you really get when you install on your plant the

Hardinge Watchman's Clock

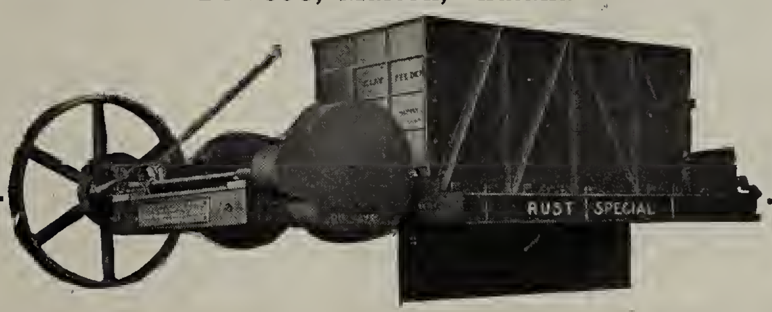
It really costs you nothing because the reduction you get in insurance premiums will pay for the system. Then—you get the best kind of protection against fire and theft.
Why not ask us about it?

Hardinge Bros., Inc.
1760 Berteau Ave., Chicago, Ill.
Approved by National Board of Fire Underwriters.

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



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Hoop Lugs **made by CALDWELL**

will never slip or give way. They are the only "positive grip" lugs on the market. This lug does not depend on friction to hold it, as other lugs do.
Our catalogue of Tanks and Hoop Lugs, contains illustrations giving full details. Let us send you a copy and make you prices.
We can ship promptly.

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Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

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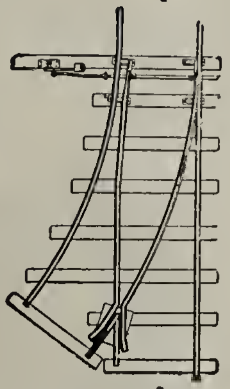
Industrial Track Equipment

Everything in switches, crossings, frogs, switch stands, rail braces, tie plates—ready to be shipped promptly on receipt of your order.

Ask us for quotations on your industrial railway needs.



The Cincinnati Frog & Switch Co.
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Drier Doors That Hold the Heat

No matter what type drier you have, you need to equip it with the

"Carrier" with One Door Lifted.

Perfected Dry Kiln Door Carrier

Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

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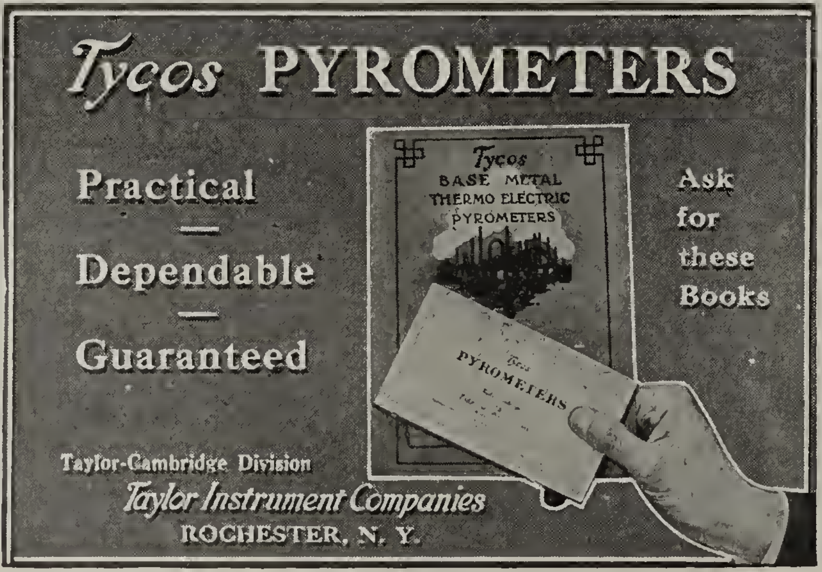

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Taylor-Cambridge Division
Taylor Instrument Companies
ROCHESTER, N. Y.

help me in eliminating the clinkers? If it is necessary I can mix wood with the coal.

We have never printed anything in past issues of "Brick and Clay Record" that would cover the points mentioned in our correspondent's inquiry given above, but would suggest that, while cleaning out the clinkers, long-handled clinker bars and shovels be used. Try cleaning oftener, thus preventing an accumulation of hard, tough clinkers. Fire light and often, rather than heavier "baits" at long intervals.

Do not stir up the fuel bed with the clinker or slash bar between cleans. Constant stirring tends to form clinkers.

Hang a sheet metal plate over the top half of the door during cleaning. This prevents radiation directly on the fireman and permits him to see the furnace at the same time.

We would suggest that a new coal be secured, if it is economically possible. Choose one that is non-clinkering and free from iron and sulphur. Clinkers can hardly be entirely eliminated, but if the suggestions given above are followed, much of the trouble from this source can be minimized.

Grinding Bats for Sand-struck Brick

792. *Maine—Can you give me any information concerning the use of ground brick bats in place of sand on sand struck brick? If this can be done, what kind of a grinder do I need. Would it be better to grind coarse gravel which we have near the plant? We are obliged to haul our sand about seven miles now.*

We do not have any definite information regarding the use of ground bats in place of sand in the manufacture of sand-struck brick, but on the surface, your suggestion looks feasible, altho we cannot say positively that it will work.

If this can be done, you will probably need a disintegrator or a dry-pan, depending upon the condition of hardness of the bats and the quantity of ground material desired. A screen will also be necessary. In this connection, an automatic screening device will be preferable.

The question of using the coarse gravel which you have near the plant is doubtful, as its chemical action under heat is problematical.

We would advise that you experiment with both propositions thoroly until you are convinced that ground bats or ground gravel will or will not do as a substitute for sand. If your decision is in any way favorable to either of the two materials, it would then be wise, in our estimation, to consult with the engineering departments of the best clay machinery concerns for final advice and equipment.

Burning Drain-tile in Scove Kilns

788. *Washington—We are burning brick in an old style, up-draft kiln. Could we burn drain-tile above the arches about four courses? The arches are sixteen courses high. We would set the tile from the sixteenth to the twentieth course and then put on six courses of one-foot drain-tile, or we could make low arches and burn a larger number of tile in the kiln. The demand is greater for drain-tile in our section than for brick and we have not the capital to invest in a round, permanent kiln. Therefore, we would like to continue in some way to burn the tile in the scove kiln, using slab wood as fuel.*

Since the above question, together with a reply, was published in the August 15 issue, we have received a letter from Robert W. Jones, assistant in Economic Geology, connected with the office of the New York State Geologist at Albany, which reads as follows:

"I notice in your issue of August 15 a question in regard to the burning of drain-tile in the ordinary form of scove kiln.

"For some time one of the yards in New York state has been making an output of common soft-mud brick, hollow-brick and drain-tile, burning all three in the same kiln—one of the scove type. In burning common-brick, the usual custom has been to build the kiln fifty-four high. This same height is retained when burning a combination of common-brick and tile. The kilns are burned with a capacity of about 42,500 per arch with twenty arches to the kiln. The first fourteen courses or so above the top of the arches are set with common-brick. This is usually followed by several courses of hollow-brick and then by drain-tile set on end in nests of different sizes. After several courses of tile there is usually several courses of hollow-brick followed by several of common-brick. In most cases the tile are completely surrounded on the four sides of the kiln by courses of hollow-brick. The burning is started with wood and completed with coal, using a steam forced draft."

Mr. Jones has made no mention of the method followed in platting the top of these kilns which, we believe, is of considerable importance, as the whole matter of retaining sufficient heat to burn the tile depends upon the way in which the platting is laid. We have written him asking for further information along this line.

The Semi-Monthly Trade Review

ALTHO A RECESSION in the amount of national building during the past fortnight is to be noted, and many unfavorable elements are still to be contended with in certain sections, yet conditions as a whole warrant continued optimism on the part of the dealers in and manufacturers of burned clay building materials.

From many centers is received the report that manufacturers are experiencing great difficulty in supplying the demands of contractors. The report from one or two other centers is directly contradictory to this statement of prosperity, but the general outlook for building is exceedingly satisfactory for this time of the year. In those centers where heavy building has temporarily let up, as well as in places where the demand has been very active thruout the year, confidence is felt that the many big jobs now on the boards of the architect will soon develop, consequently absorbing a large amount of material that is at present finding its chief outlet in small residential building.

You Simply Can't Do It—

You **can't** get the best results from your blasting unless you use a

CYCLONE DRILL

If you will write us for Bulletin B 4, we will tell you how the Cyclone Drill has paid for itself in a few months' use.

The Sanderson-Cyclone Drill Co.
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The All-Steel
K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.

Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

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by insulating the crowns and walls of your kilns with

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MADE FROM CELITE

Prevents heat penetration. Has 10 to 12 times the heat insulating value of fire-brick. Produces absolutely uniform heat. Reduces fuel consumption.

The reduction in rejected pieces will pay for the insulation in the first month of operation.

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Write nearest Office for Samples and Information.

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"Toronto" Babbitt is made especially for brickmen, from the formula our experience has shown to be the best. Give it a trial and you'll use it regularly. Ask for prices.

THE TORONTO FOUNDRY AND MACHINE COMPANY
TORONTO - OHIO

Air — —
the Greatest Drier

THE woman who does your family washing could tell you that a windy day is better for drying clothes than a merely hot day, but that a warm windy day is the best of all. The warm air supports more moisture than cool air, but after all it is air **in motion** that carries off the moisture.

Sirocco Brick Drying Systems (equally applicable to drying all clay products) not only make available warm air in motion but they supply the means of perfectly controlling the temperature and volume of this air.

The perfectly uniform product, obtainable in a Siroccofied plant, commands a steady and widened market. The amount saved from spoilage alone would make the installation of a Sirocco System worth while.

A big book on this phase of the clay products business is to be had by asking for "The Brick Drier," No. 13-A, sent free by the

American Blower Company
Detroit, Michigan
Branches Everywhere

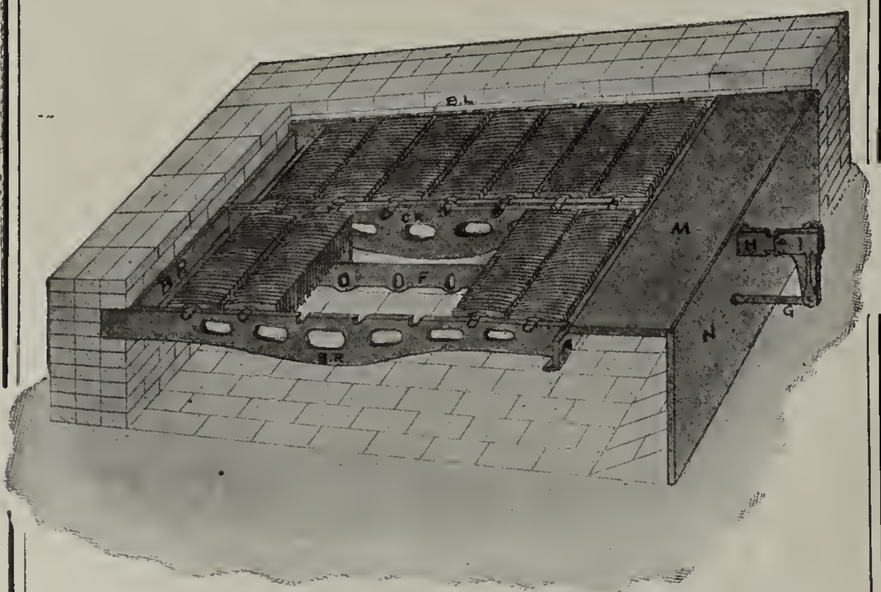
(24)

Those brick companies that have installed the

CYCLONE BOILER GRATES

never have to worry about their power plants because they know they are getting more heat out of less fuel than they have ever been able to get in the past.

We had to prove it to them first, however, just the same as we ask the opportunity to prove it to you—by installing our grates on **90 days' trial.**



CYCLONE GRATE BAR CO.
BUFFALO, N. Y.

Another factor that has served to stimulate builders to action is the fact that there is no hope in sight for a material reduction in the price of steel, upon which depends the price of most other building materials. Also, any apprehension that had previously been felt regarding the condition of business after the cessation of the European conflict is rapidly disappearing, due to the fact that the recent entrance of Romania, and the possible entrance of Greece, into the entanglement forecasts no immediate ending. Hence, Wall street seems to have acquired the opinion that, rather than a declension, there will be a further upturn in prices, dealers and builders in the East seeming to share the same opinion.

While the total figures for national building during July show a decrease in the number building permits of 3.4 per cent., their value is estimated as being 64.2 per cent. in advance of last year's figures, reflecting the higher cost of building.

NUMEROUS INQUIRIES FOR BRICK IN NEW YORK

Conditions in New York city, which may be taken as a fair indicator of those prevailing along the Atlantic coast, are not of the best, being retarded and hampered by labor difficulties. Otherwise the demand is good, many dealers and distributors claiming that they have never known a time when builders made so many direct inquiries for brick. One dealer in the metropolis has already commenced stacking for winter, a most unusual action for August. Prices remain firm for Hudson river common-brick at $7.25 per thousand, while Raritan river brick are bringing as high as $7.50. Hudson river manufacturers are only operating at about half their plant capacities, an explanation for which is given in the fact that recently, on one Newburgh yard, fourteen out of seventy men quit work on pay day to go to munitions plants.

Brooklyn gives evidence of a revival of brick building, since in the week ending August 15 this borough took twenty-two barge loads out of the New York market as compared with but fourteen the previous week. Newark (N. J.) building permits for the week ending August 26 totaled fifty-nine with an estimated cost of $183,913, as against forty-two with an estimated cost of $47,839 for the corresponding week of last year—a gain of $136,074 in value. Of this amount over $104,000 will be expended for brick or other fireproof buildings.

SITUATION IN PHILADELPHIA CONSIDERED GOOD

The building situation in Philadelphia is considered favorable, a large amount of work being in the course of completion, while a number of big contracts are now under the hammer. Consequently, there is a good movement of building materials of all kinds at this point. Nashville, Tenn., a stranger in these columns, reports a veritable "boom" in progress within its limits, having experienced a gain of about twenty per cent. in the movement of building materials over last year's record, with permits considerably more numerous and valuable.

DETROIT AND CLEVELAND STILL AT IT

The passing of the summer still finds Cleveland and Detroit enjoying the tremendous activity that has prevailed at those points since the early part of the year. While Cleveland reports numerous operations in process of completion and many others contemplated, Detroit is pushing the value of this year's building to the record figure of $40,000,000. The greater part of this work has been in housing construction and factory buildings, extensions and additions, and it is claimed that housing conditions will not reach normal for at least another year.

CINCINNATI BUILDING NOT SATISFACTORY

Building in and around Cincinnati has shown some increase in activity recently, altho it has not by any means reached a volume which is satisfactory to the brick trade and others interested. The extreme scarcity of common labor, together with the high prices of various materials, has served to scare off builders and, while there are many buildings started earlier in the season now under way, new work is comparatively scarce. Brickmakers at this point seem to be troubled over the prospects of a dull fall business, despite the fact that the outlook is a very encouraging one for the rest of the country.

Louisville brick manufacturers and dealers have been fairly busy during the past six weeks with deliveries on old contracts, but the records of the building inspector's office show a big slump in new work let in July and August. Several big jobs are expected to develop late in the fall.

DEMAND FOR PAVERS RUNS HIGH IN KANSAS

The brick situation, especially as to paving, seems to be growing rather serious in Kansas. It is reported that the plants now operating have difficulty in turning out a sufficient quantity to supply the demands. The situation has induced the owners of closed plants to foresee possible sales of their properties to investors who are anxious to take advantage of an opportunity of this kind.

RUSH PERIOD NOW ON IN CALIFORNIA

California builders are going ahead with a rush on all sorts of construction work, now that the recent dock strike is over. Conditions are not as yet ideal, however, since small strikes are of frequent occurrence. Building in San Francisco at the present time is being handicapped to a certain extent by a structural steel strike. At this point the labor situation has become so acute that a commission has been appointed to investigate the causes and seek to find a remedy.

The largest building enterprise of any kind in recent years on the coast is the new Southern Pacific office building in San Francisco which will be comprised of four units, each to occupy a city block. Much progress has been noted in public sanitary improvements and a large amount of sewer work is under way. The face-brick and terra cotta markets are steady, while that of common-brick is unusually strong, very heavy deliveries being made.

IN *the* WAKE *of the* NEWS

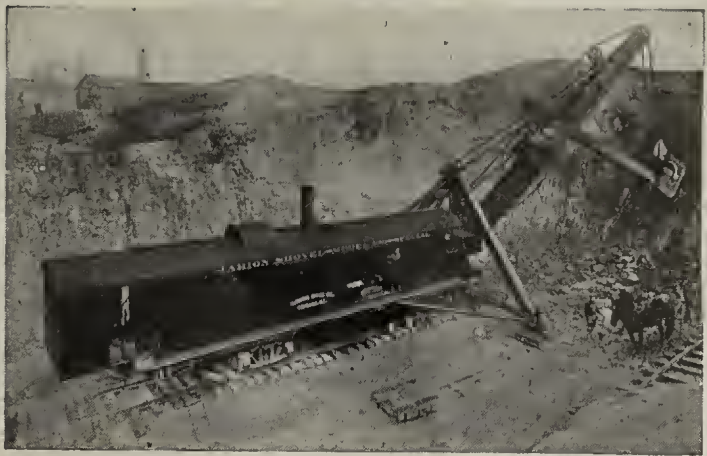
Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

H. E. Stringer, salesmanager of the Washington (D. C.) office of the Hydraulic-Press Brick Company, has been enjoying a motor trip thru Maryland.

The single blessedness of O. L. Helfrich, assistant superintendent of the Streator (Ill.) Clay Manufacturing Company, ended on August 23 when he was married to Miss Helen Cushing. The best wishes of the happy couple's many friends go with them.

Guy Weaver, superintendent of the National Fire Proof-



YOU can't raise steam from cold water—you've got to heat it first. You can't make good bricks from clay as it runs in the bank—you've got to get it *thoroughly mixed.*

A Shovel that digs without mixing, leaves part of its work undone. One of the things that owners appreciate so greatly about our Shovels is the fact that

"Marions" Mix the Clay as They Dig

—making your work in the grinding room much more simple, and producing a more uniform run of brick. "Marions" also enable you to handle very bard material without blasting.

Particulars? Our special Brick-Makers' Catalog A120 is full of them—get *yours*, without obligation, by writing today.

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120

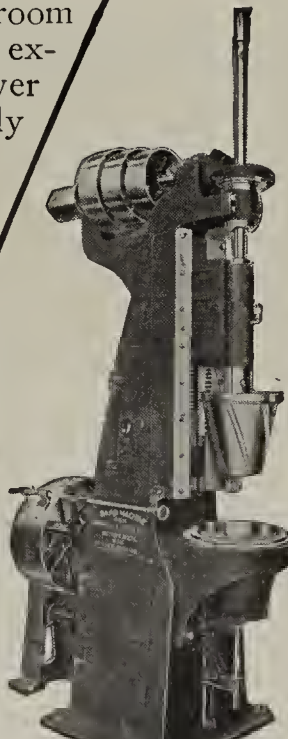
A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.



THEY CHOSE

PRICE PYROMETERS

In Preference to All Other Makes

One of the largest sewer pipe manufacturers in the world was asked recently what their experience had been with Price Electric Co., of Cleveland, makers of Price Pyrometers, and this was their answer:

"About one year ago we equipped our entire plant with Price pyrometers, thirty-six kilns in all. I can say that they are giving us entire satisfaction and that we would not care to dispense with them and to operate our plant without a pyrometer.

"We looked over quite a number of installations of other makes of pyrometers and decided that the Price would suit our conditions much better than any of the others. The installation is quite simple and the instruments are very easily taken care of."

NEED WE SAY MORE?

The Price Electric Co.

12367 Euclid Ave.
CLEVELAND - OHIO

LEHIGH PORTLAND CEMENT CO.
LEHIGH
ALLENTOWN, PA.—CHICAGO, ILL.

Why Most Brick Streets Use Lehigh Cement

Because it is not only high in strength, but dependably uniform.

A perfect vitrified paving block of your manufacture used with a perfect cement filler of Lehigh Cement makes a permanent street for the city and a permanent highway for the country.

These are only a few reasons why more brick streets use Lehigh Cement than all others combined.

You Cannot Afford to Take Any Risk

Lehigh Cement is the perfect cement. Specify it always. It protects you. Set the proportions for the mixture. Adhere to them. Then your job will be uniform throughout.

LEHIGH CEMENT

Cement Grout for Permanence

ing Company's plant at Perth Amboy, N. J., will be a mayoralty candidate in that city on the Democratic ticket this coming fall. Mr. Weaver enjoys great popularity among his fellow workers.

W. S. Hoyt, manager of the United Materials Company, San Francisco, has just returned from a two weeks' business and pleasure trip to Southern California. He says that plant No. 4 of the Los Angeles Pressed Brick Company, now being erected at Elsinore, Cal., will be ready for operation some time this fall.

Joseph Spang, a well-known brick manufacturer of Pottstown, Pa., recently celebrated his seventy-seventh birthday and is enjoying good health. During the Civil War, Mr. Spang served in Company A, 53d Pennsylvania Regiment. He has been operating a brick plant for fifty years.

Frederick B. Stevens, a prominent brick manufacturer of Detroit, Mich., is exhibiting several interesting specimens of shale, taken from his mine, that bear the imprints of early animal and plant life. Probably the most interesting of the specimens are two which contain almost a perfect impression of a frog's foot and a fern leaf.

H. E. Thompson recently resigned the position of superintendent of the Indiana Paving Brick and Block Company, Brazil, Ind., and has been temporarily succeeded by J. H. Nussel, formerly factory manager of the plant. Mr. Thompson plans to spend the next six months carrying on personal investigations in connection with the manufacture of a new type of victrola.

Will P. Blair of Cleveland, Ohio, secretary of the National Paving Brick Manufacturers' Association, accompanied by Professor Greenough of the Case School of Applied Sciences, also of Cleveland, was in Columbus late in August visiting the Ohio State Fair. While there they were entertained by James R. Marker, commissioner of the Ohio Paving Brick Manufacturers' Association.

Following an illness of ten weeks, John F. Luedeman, age sixty-seven, formerly engaged in the business of making brick in Indianapolis, died during the early part of August, at his home, 1017 Prospect street. Mr. Luedeman was born in Germany and came to Indianapolis when he was only eighteen years of age. He retired from business a few years ago. He is survived by his widow and eight children.

Fritz Salmen of the Salmen Brick and Lumber Company, New Orleans, was in Detroit during the last week in August, visiting George H. Clippert. Mr. Salmen took the boat from New Orleans to New York city, shipping his motor car. From New York he drove in his machine to Detroit via Canada, and is touring home. He said the south was very prosperous, and that building conditions were excellent, with a lively demand for all kinds of brick.

Daniel Heller Tyndall, who is associated with his father in Krick, Tyndall and Company of Decatur, Ind., draintile manufacturers, and Miss Kathryn Egly of Fort Wayne, were married during the early part of August at the home of the bride's parents, Mr. and Mrs. Christian Egly, 1029 West Wayne street. Following a honeymoon in the East, the couple will return to Decatur, where they will make their home with Mr. Tyndall's parents.

J. C. Stillwaugh resigned his position as superintendent of the Hamilton (Ohio) Brick Company on September 1 to take charge of the new plant of the Natural Products Company, now under construction at Shoals, Ind. Mr. Stillwaugh will, as general manager, attend to the purchase and installation of the machinery and supervise the construction of the plant which, it is estimated, will require about two more months to complete.

At the annual meeting of the Central District Mantel and Tile Manufacturers' Association which was adjourned at Louisville, Ky., on August 26, Charles L. Shannon, Jr., of Cincinnati, Ohio, was elected president, W. C. Magruder of Louisville, Ky., vice-president, E. P. Butler, Milwaukee, Wis., treasurer, and T. E. Beck, Detroit, Mich., Edward Pickens, Chicago, Ill., F. S. Keating, Minneapolis, Minn., and Charles Schmacher, Toledo, directors.

Herbert C. Mehrhof, treasurer of the Mehrhof Brick Works of Little Ferry, N. J., was beaten and robbed of $1.800 on August 26 as he was returning to the plant from the bank with the weekly payroll. Mr. Mehrhof was found unconscious in a strip of woods near the brick yard, thru which he was compelled to pass, with one finger of his right hand severed, and suffering from other injuries. Mr. Mehrhof is being cared for in a local hospital.

James A. Hayward, superintendent of the Brazil (Ind.) Hollow Brick and Tile Company's plant, died last month at his home on North Murphy avenue as a result of a complication of diseases. He was forty-eight years old. Mr. Hayward had been in ill health for some time, but it is said that his condition was aggravated by a clash he had recently with two of the striking workmen's pickets, who tried to prevent his two sons from going to work at the plant. Hayward attacked the pickets after they had struck his sons, and in the struggle that followed he either fell or was shoved on some broken sewer-pipe, causing a fracture of the left rib. The pickets claim that Hayward fell when they wrested a cane from his hands. Mr. Hayward was born in Pennsylvania, but had been identified with the management of the hollow-brick plant for a number of years. He is survived by a widow, three sons and a daughter.

Arkansas

It is rumored that local interests of Van Buren, Ark., are about to organize a brick manufacturing company and construct a plant at that point, more than $2,000 having been voluntarily subscribed thus far. The clay has been tested, it is said, and the results have shown it to be of a satisfactory quality.

California

N. Clark and Sons, San Francisco, Cal., have been awarded the contract for supplying the terra cotta for a new bank building at Napa, Cal.

There is some prospect, according to reports, that the old Carey brick works at Richmond, Cal., which have been inactive for several years, will be put into operation again shortly.

Gladding, McBean and Company is to supply the terra cotta for the new furniture store building of the John Breuner Company in Oakland, Cal., and also the face-brick for same.

The United Materials Company, San Francisco, reports a fairly active month in August, with numerous jobs of more or less consequence. The company is furnishing common-brick and red pressed brick for the new Porter school at Alameda, Cal. Mr. Hoyt states that red roofing tile is being specified very freely by architects.

C. F. Pratt, president of the Pratt Building Material Company, San Francisco, Cal., has secured the contract for fur-

DU PONT
EXPLOSIVES

Practically Used in Clay Pits Will Enable Your Shovels to Move Clay Easily and Quickly

Write today for FREE BOOKLET telling how to practically use DU PONT EXPLOSIVES in your clay mine and pits.

ADDRESS DEPT. 419

E. I. du Pont de Nemours & Co.
Powder Makers Since 1802
WILMINGTON, DEL.

Brick and Tile Manufacturers:

The Burning Question!

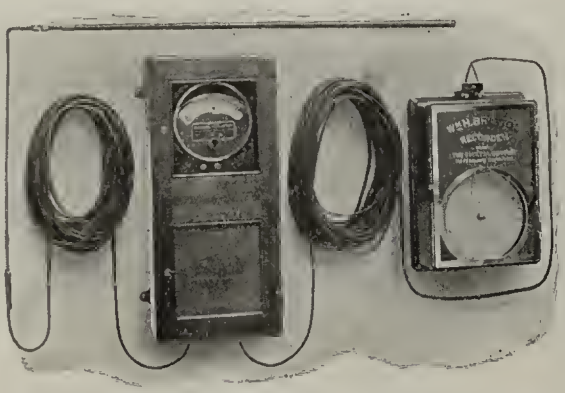
How Can I Double Output

Without Increasing Expense?

It's easy! Just fill out, tear off and mail this coupon. Reply will come back promptly.

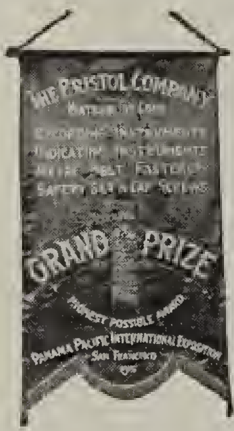
The Ohio Kiln Co., Vigo, Ohio.
Without obligation, tell us how to double output of Brick and Tile. Present plant consists of
....
....
....
Name ....
Address ....

Note: The Ohio Kiln Company has no connection with any other company and has only one office—located in Vigo, Ohio.



Bristol's Pyrometer Installation

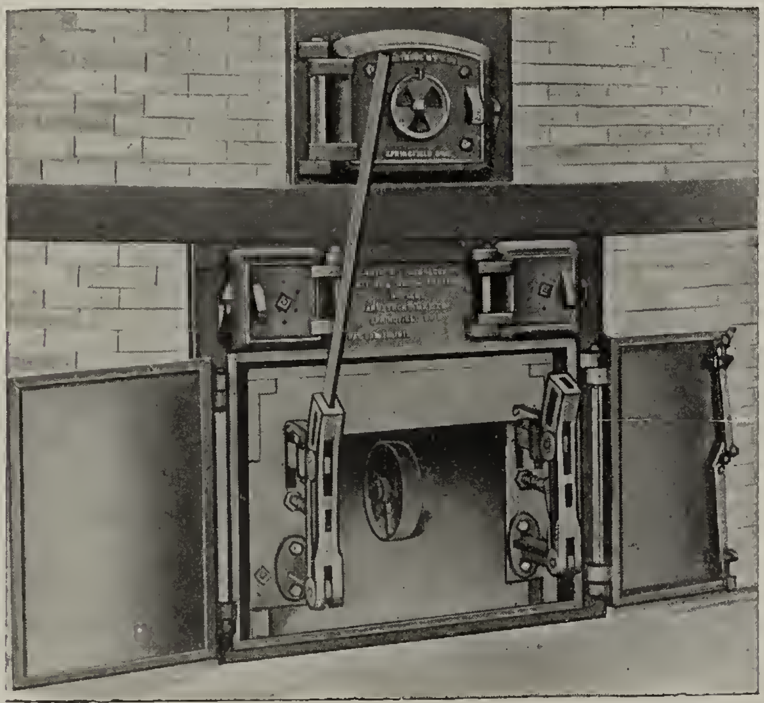
For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.



Write for Bulletin 205

THE BRISTOL CO.
WATERBURY, CONN.

BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

nishing the hollow-tile for the Dow library building now being erected on the campus of the University of California at Berkeley. The company is delivering this material on several other important jobs also, one of which is the new J. K. Armsby building at California and Davis streets, San Francisco.

As a sequel, so it is presumed, to the strike at the plant of Gladding, McBean and Company, Lincoln, Cal., recently, the company suffered a $20,000 fire loss on the night of August 3. The flames destroyed a large barn in which sixteen horses were burned, and a tool house containing several wagons and a supply of implements. The barn was a frame building and it was impossible to stay the flames. Only one horse was saved. Seventy-five tons of hay were also destroyed in the barn, and the fire spread to a stack of tule hay, containing more than 2,000 bales, used for packing tile and pottery. Most of these, however, were saved by the fire department. The main buildings of the plant, being fireproof, escaped damage. Some disgruntled striker is thought to have set the barn on fire. Plans are being made for replacing the destroyed buildings.

Colorado

Not since the oil "boom" in 1908 has the Boulder (Colo.) Pressed Brick Company enjoyed such a tremendous business as it has during the present year. The company's plant has been operating thruout the summer, and has sufficient orders on hand to keep it in operation until the end of the season. Two orders calling for more than 650,000 brick, to be used in the construction of two school buildings going up at Boulder, were recently filled by this company, besides the many smaller orders that have absorbed a large part of the firm's output.

Connecticut

Collapse of a setting at the J. C. Lincoln brick yards, Middletown, Conn., on the morning of August 16, resulted in the serious injury of one employe and slight injuries to another. The man who was most seriously hurt was standing on top of the setting placing the brick as they were thrown to him from below. He was buried beneath the pile by the collapse.

Heavy storms have wrought considerable damage at some of the Connecticut brick yards. A severe thunder storm on August 10 raised havoc at the plant of the Berlin Brick Company. The wind upset eight racks upon which a million brick were drying and scattered them in all directions. A roof on one of the sheds also was blown off. The damage was repaired in short order, however, and the work at the yard was not seriously interfered with.

In spite of numerous storms, shortage of labor and other drawbacks, Connecticut brick manufacturers have been able, by unusual efforts, to bring the business up to the normal in nearly every case. The yards about Berlin have been running with practically a full complement of employes during the past month. Another two months of favorable weather will give the manufacturers a good year. In cases where it has not been possible to turn out as large a number of brick, as in some years past, the shortage has been more than offset by the increased price so that most of the manufacturers figure that the profits of the present year will be about the same as in other recent years.

District of Columbia

The demand for brick in Washington, D. C., is reported from all sources as being exceptionally good at this time. One of the larger companies located at that point reports that its sales for the first six months of this year were fifty per cent. above the same period in 1915.

Since August the Hydraulic-Press Brick Company's office at Washington, D. C., reports the closing of the following contracts. For furnishing 200,000 gray smooth face-brick for a new apartment house being erected by Harry Wardman at Eighteenth and K streets; also 200,000 light buff brick for the same party, to be used in a new apartment house at Seventeenth and Riggs streets. The Hydraulic Company is also furnishing about 200,000 gray smooth brick for the new building for the Department of Justice, being erected by private parties. Light buff brick manufactured by the company is specified in a new building for the Department of Labor now being constructed.

Idaho

The Idaho Fire Brick Company of Troy, Idaho, has been compelled to install an additional 60 h. p. boiler, together with new kilns and driers, owing to the heavy demand that is now being experienced for its products. Just recently this company shipped an order of twenty carloads of fire-brick to Spokane, Wash.

Illinois

A large order for brick to be used in paving several thorofares now being planned for Sterling, Ill., has been secured by the Purington Paving Brick Company of Galesburg.

The plant of the Buda (Ill.) Brick and Tile Company narrowly escaped destruction recently when fire of an unknown origin consumed many cords of fuel wood piled on the yard.

The Poston Brick Company's new plant at Springfield, Ill., has now been in operation for thirty days, producing 60,000 "Pos-Tex" face-brick daily. Nine of the twelve kilns are in use, while the electrically-driven machinery is turning out two different lines of rough-faced face-brick.

The Gilman (Ill.) Brick and Tile Company has been purchased from Charles Lenz by Sam Jackel. The plant has been put in operating condition, and will immediately begin manufacturing brick and drain-tile. Provisions are now being made for the manufacture of hollow building tile, which, it is expected, will be undertaken in the near future.

Organized at Colchester, Ill., with a capital stock of $50,000 for the purpose of manufacturing fire-brick and flue lining, the company suggested several months ago by A. W. Gates of Monmouth, Ill., will soon be in operation. It is understood that the incorporators of the company have applied for the necessary papers and are now making arrangements for the purchase of the machinery.

At the annual meeting of the Sample-Williams Clay and Color Company, held recently at Ottawa, Ill., Ralph A. Green made a very optimistic report on the condition of the company, showing the money to have been well invested and the plant to be in good condition and well managed. While the plant is in Jackson, Ala., yet the greater part of the capital comes from Ottawa and, for this reason, the meeting was held at that point. Furthermore, it was decided to locate the main office of the company at Ottawa and maintain a business office in conjunction with the plant at Jackson. The company manufacturers brick, tile, stoneware, ochre, turpentine cups and fire-brick, finding a ready market for all of its products. At the meeting M. L. Sample was elected president; F. C. Bellrose, vice-president; R. A. Green, secretary; A. W. Wing, treasurer, and

Jenkins Bros. Valves

Specifying Jenkins Bros. means freedom from valve troubles.

Means getting the original Jenkins renewable disc valves, with body, trimmings and all working parts strong and well proportioned. Means getting valves made of a superior grade of new steam metal—no scrap or yellow brass.

Specifying Jenkins Bros. also means getting valves which seldom wear out in service. All parts are made to gauge and are interchangeable, and when necessary repair parts can be obtained through your dealer at nominal cost. Most of the wear comes on the disc, which can be replaced easily, quickly and inexpensively.

Look for the trade mark and specify the name in full—Jenkins Bros.

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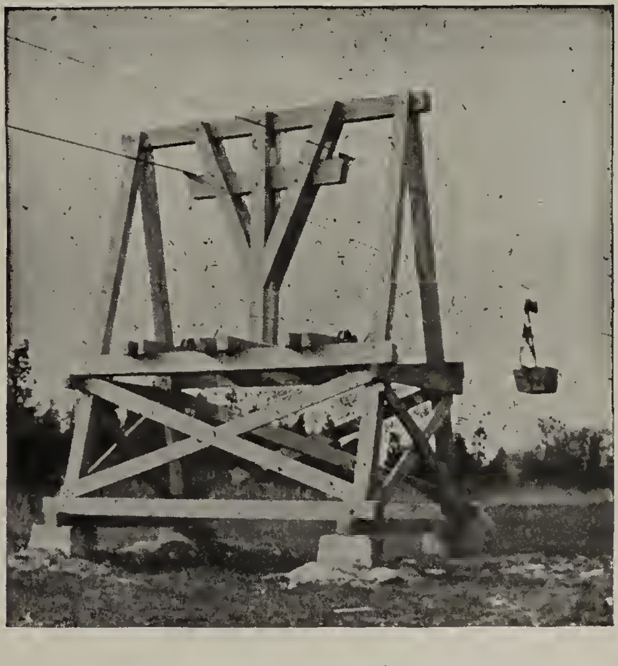
Jenkins Bros.

80 White Street. New York. 524 Atlantic Avenue. Boston.
133 N. 7th Street. Philadelphia. 300 W Lake Street. Chicago.
Jenkins Bros. Limited. Montreal, Canada, and London. E. C England.

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

If the Grade is Sufficient—
Gravity Supplies All of the Power



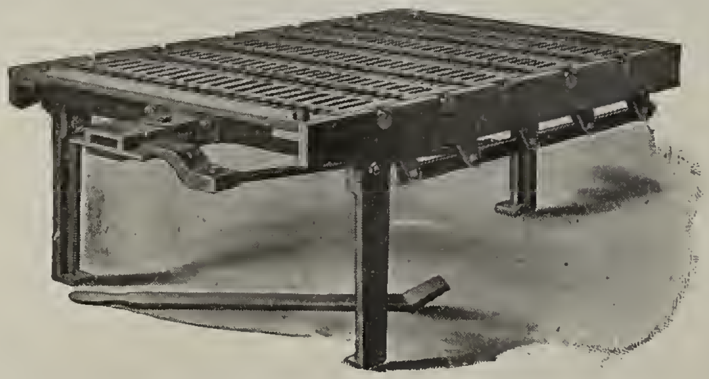
B. & B. Friction Grip Aerial Tramway

requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

BRODERICK & BASCOM ROPE CO.
New York ST. LOUIS, MO. Seattle

Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

HETTRICK RED STITCHED CANVAS BELTING

Sticks—Doesn't Slip—Lasts

It Certainly Beats Them All.

It's the ideal belt for the clayworking plant in connection with

**Elevating—Conveying
Transmission**

It is proof against water, oil, dust, sudden jerks and over-loading. No matter what the conditions are a Hettrick Belt keeps on giving service until it wears out—and it takes it a good long time to do that.

THE HETTRICK MFG. CO.
TOLEDO, OHIO

O. H. Williams, general manager. Besides these, William D. Duncan and J. E. Kembler were elected directors.

Indiana

The contract for building the first brick road in Whitley county, Indiana, has been let to the Walfecale and Crow Company of Markle, Ind., for $11,958. The new brick road leads into South Whitley, and is one of the most traveled highways in the county.

The H. J. Moody drain-tile factory building at Greensburg, Ind., was sold during the second week in August to Oscar Miller, a well known Greensburg real estate dealer. The sale did not include the boiler and tile making machinery now retained by the Greensburg Commercial Club. These will be disposed of later.

A petition has been filed with County Auditor J. I. Muentzer, to be delivered to the Knox county commissioners, asking that the Cathlinette road, leading out of Vincennes, Ind., be improved with brick for a distance of two and one-half miles from the city limits, in place of concrete. Without exception, municipal paving in this city has been of concrete, but the introduction of the first petition of its kind, asking for brick highways, forecasts the use of that material in some of the paving work undertaken by the city.

Iowa

A new brick and tile plant is being built at Madrid, Ia., by S. L. Davison of St. Paul, Minn., who recently purchased the plant and equipment of the Rockwell City Brick and Tile Company for the purpose of converting it into an agricultural implement factory. The machinery in the Rockwell City plant is being moved to Madrid.

The formation of a union of the workmen in the Fort Dodge (Ia.) clayworking plants is said to be under way, the men having held meetings and applied for a charter. It is expected that should the union be perfected it will have a membership of about one thousand, so large is the number of men employed in the industry at this point.

A resolution is being drafted by members of the Waterloo (Ia.) city council to provide for the paving of railroad crossings within the city limits with brick, where the streets crossed are already paved. Most of the crossings at the present time are laid with planks, and are in need of repair. However, the action of the council will make it obligatory for the railroad officials to use brick in place of planks, thereby providing a safe and permanent crossing.

After a spirited battle in the city council of Clinton, Iowa, members of that body registered themselves as being seven to two in favor of paving the sectional streets from Fifth to Ninth with brick. For two hours before the vote was taken, a heated discussion was staged, many of the citizens being present and presenting their views on the type of pavement, brick or asphalt, that should be used. For weeks previous, investigations were made to determine which would be the better material to use under the prevailing conditions. Preferring to lay a permanent pavement and one which would have practically no cost of upkeep, the council awarded the contract, calling for brick, to Thomas Carey and Sons, whose bid amounted to $48,816.45, altho the asphalt bid was about $11,400 lower. It is rumored that the brick will be supplied by the Purington Paving Brick Company of Galesburg, Ill.

The large plant of the National Clay Works, located at

Mason City, Ia., was partially destroyed by fire on August 4, a loss of from $20,000 to $30,000 having been suffered, according to George S. Winter, general manager. This company operates one of the few gas-fired continuous kilns in the West, and it is believed that the fire started when escaping gas became ignited. The kiln roof was completely consumed within an hour after the fire had started and the flames spread rapidly to two small adjoining buildings, which they quickly destroyed. The producer itself was damaged, as were also ten cars loaded with drain-tile. The platform of the producer and forty feet of the discharging end of the drier were destroyed, besides much of the equipment, included in which was the motor and cooling pipes for the producer and the molding machinery.

Kansas

The Kansas City (Mo.) Brick Company, recently incorporated, has been given permission to use its $40,000 capital in equipping and operating a plant in that state.

It is rumored that the New Albany (Kan.) Brick Company, after a long period of inactivity, is soon to reopen. The company previously manufactured a dry-press face and common-brick.

The Capital City Brick and Tile Company of Topeka, Kan., reports having enjoyed an exceptionally good business all summer. A recent contract received by this company called for 150,000 face-brick to be used in the new Lincoln High School being built in Topeka. This company's plant is the only one in operation at that point.

Kentucky

The Louisville (Ky.) Builders' Supply Company, dealers in brick, sewer-pipe and various other materials, has installed two large motor trucks which are giving excellent service and saving considerable time, especially on long hauls.

A. P. McDonald, salesmanager of the P. Bannon Pipe Company, Louisville, Ky., was recently in Lexington for a few days looking over some contracts which are about to be let. The plant of the company is operating on a good schedule.

At Maysville, Ky., Engineer Miller and the Internal Improvement Committee gave vitrified brick a decided boost when they changed specifications for the paving of Second street from asphalt, as originally specified, to brick. It was contended that brick would give better service, considering the heavy traffic on this thorofare.

The Tyler Building Supply Company, Louisville, Ky., is finding things a little quiet on new business, but has a quantity of old jobs on hand, and is busy with deliveries. L. M. Parsons, manager of the company, is looking forward to some good orders being placed in the late fall.

The Coral Ridge Clay Products Company, Louisville, Ky., reports that it is still having considerable trouble in getting the prompt setting of empty freight cars in which to ship its products. Cars are generally a day to three days late in getting to their sidings, thereby slowing up rush shipments in many cases. Very few complaints are being received from the company's customers, however, as nearly everyone appreciates the circumstances. The company is operating its plant full time and is managing to dispose of its output.

The clay mining industry has proved very promising in the Paducah (Ky.) district and, from present indications,

THE
ELECTROMOBILE
TRADE MARK
INDUSTRIAL TRUCK
AND TRAILERS
are proving important factors in the reduction of transportation costs in yards everywhere.
The Electromobile *replaces from three to six wheelers* and *will usually pay for itself in from six weeks to a year.*
KOPPEL
Complete Industrial Railways
CLAY AND DRYER CARS
Portable Track, Rails, Steel Ties, Switches, etc.
Are invaluable as Brickyard efficiency aids.
Write for Catalogs and Data.
ORENSTEIN-ARTHUR KOPPEL CO.
PLANT: KOPPEL, PA.
Sales Offices
New York, Chicago, Pittsburgh, San Francisco.
Branches throughout the world.

"Nothing Succeeds Like Success"
THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS
Have been placed in
EIGHT MORE
CERAMIC PLANTS
Since the Cleveland convention
Are you Interested?
Let Us Tell You About It
THWING INSTRUMENT COMPANY
437 N. FIFTH STREET
PHILADELPHIA, PA.

The Installation that Gives Results for Years

BEIGHLEE "THE PYROMETER WITH A CONSCIENCE"

Of Course—There Are REASONS

Good results can only come Consistently from an installation that has an ideal construction for the work required.

For instance—Beighlees are high resistance instruments, they are automatically compensating for cold junction errors, they are furnished with rare metal couples, and they are rugged.

With all of this they are dependable and accurate.

Beighlee instruments are big and impressive—in a distinct class by themselves.

Let us send you the proofs—today.

BEIGHLEE ELECTRIC COMPANY
CLEVELAND, OHIO
HERMAN A. HOLZ, Hudson Terminal Bldg., New York City, Representative in New England States.

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you can do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H.—the dependable brand.

Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. New York
Chicago, Ill. St. Louis, Mo. Philadelphia, Pa.
East Liverpool, O. Kansas City, Mo. Boston, Mass.
Cleveland, O. New Orleans, La.

We carry a complete line of high grade chemicals for the clay industry

McCracken and Marshall counties may eventually prove among the large producers of fine clay in this country. Another valuable clay deposit has just been located in Marshall county by J. A. Torien of Paducah, and A. J. Story of Marshall county. Experts have stated that the new mine has wonderful deposits, the clay being of the ball variety. A test showed traces of mineral deposits containing percentages of copper, gold and silver. The new mine is a mile from the railroad and the clay was found nine to twelve feet under the surface.

J. H. Bell, manager of the Louisville (Ky.) Fire Brick Works, states that there has been no let up in orders, and the plant is operating on full time. At present the company is very crowded with orders at both the Louisville and Grahn (Ky.) plants, but the additions which will increase the capacity at the latter point are rapidly being completed and the tension will, therefore, shortly be over. Steel mills of all kinds, blast furnaces, and so forth, are operating at record speed, and are buying more heavily than at any previous season in several years. Some of these concerns are using from eight to ten carloads of fire-brick every thirty days, and are carrying large stocks in their yards. Orders are coming in from all parts of the country just now, and metal working concerns have just got to have material. Most of the machinery, including the boilers, has been installed at Grahn. The plant will be in full operation by October 1.

Massachusetts

The newly organized Ware Brick Company of Springfield, Mass., has received an order for a large quantity of brick to be used in the construction of a new paper mill being erected at that point.

Michigan

Contracts that call for many hundred thousand brick are now being filled by the Michigan Face Brick Company of Grand Rapids. The brick are being used for the most part in the construction of school buildings, churches and factories.

The St. Clair (Mich.) Brick Company has been incorporated to manufacture and sell brick, tile and other clay products. The authorized capital stock is $75,000, of which amount $45,000 has been subscribed—$1,000 paid in cash. and $44,000 in property.

The display of the Detroit Brick Manufacturers' and Dealers' Association at the Michigan State Fair has been enlarged for use this year. The Fair opened at Detroit on September 4. During the ten days of this event the association will see that some one is always at the display, which is in the nature of a rest room, the outside walls being of brick. Ten thousand fans, with photographs of the exhibit, will be distributed.

Missouri

The Norman Clay Tile Company of Nevada, Mo., reports an unusually heavy business in hollow building tile. An order for five hundred tons of this material was recently shipped by the company to Joplin, Mo., to be used in a six-story apartment building. It has also supplied tile for the local public library building, recently constructed, and for a beautiful club house now being built. The farm trade constitutes a large portion of the company's business, since many farmers in that locality have been using hollow-tile for their buildings and silos. Two steel smokestacks, originally doing duty at the company's plant, have been torn down, and are to be replaced with others built of hollow-tile. A heavy drain-tile business is expected to develop in the fall and, in preparation for this, a large portion of the output now consists of that material.

Nebraska

Twenty horses were killed when the stables of the Smith Brothers Brick Company of Omaha, Neb., were destroyed by fire recently, causing a loss of about $10,000. This unfortunate occurrence happened at a most inopportune time, since the company has been moving its plant to a new site. An investigation is being made of the fire, as it is believed to have been of an incendiary nature.

The Hibberd Brick Company of Kearney, Neb., is doing an unusually good business at the present time. Besides the ordinary local construction work, the erection of several business blocks in the past few months, together with an auditorium, gymnasium and theater now under way, has absorbed a large part of the company's output. Richard Hibberd, manager, is well pleased with the heavy demand that he has supplied during the past few months, and is looking for more of the same character.

New Jersey

An unusually large amount of building in the Perth Amboy section of New Jersey has resulted in many orders for the Raritan river terra cotta plants. The New Jersey Terra Cotta Company is among those who were successful in securing orders.

Raritan river (N. J.) brick manufacturers report unusual activity for this time of the year. The Sayre and Fisher Company is busy, as are the other brick plants in that vicinity. According to New York market reports, there is a great demand for Raritan river brick.

Rapid progress is being made on the additions to the plant of the National Fire Proofing Company at Port Murray, near Washington, N. J. When completed the new factory will be about three times the size of the present structure. It is planned to double the capacity of the plant and many more men will be employed.

While many of the brick and hollow-tile plants in the Raritan river section of New Jersey are more than normally busy, lack of workmen has been found a serious problem to contend with. Every possible method to get men to work at the plants, even to bringing negroes from the South, has been tried, with fair to good results. The recent strike at the plants of the National Fire Proofing Company has been settled and operations are now at full swing.

New York

The Binghamton (N. Y.) Brick Company has been incorporated with a capital stock of $30,000 to manufacture brick and other clay products. W. T. Couper, F. W. Welsh and C. M. Crook, of 120 Chenango street, Binghamton, are the incorporators of the new company.

The Bronx Tile Dealers' Association held its first annual outing at Glen Island, N. Y., on August 23. The Atlantic Coast Tile Dealers' Association and leading manufacturers and salesmen of the East attended. Henry Wright, Jr., H. L. Cutting and Fred Hoering constituted the committee in charge.

North Dakota

E. W. Vance, proprietor of the Crookston (N. D.) Brick and Tile Company, reports an unusually successful year. To Jamestown alone he shipped over two hundred car-

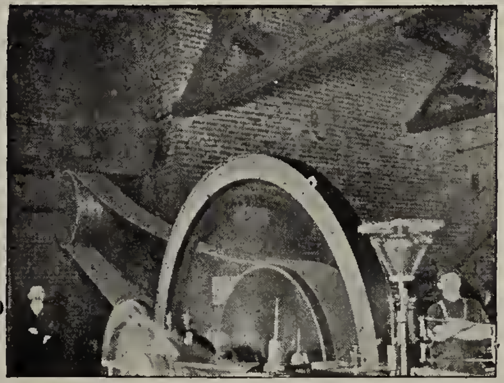
Your Clay May Be Different, But—

Absolute control of the drying elements (heat, humidity and circulation of air) makes THE STANDARD Drier adaptable for drying the **most difficult** clays successfully.

This fact we have demonstrated time and again to brick manufacturers with "different" clays to contend against.

Let us tell you what we will **specifically guarantee** in your case. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

All Cling-Surface Users Talk the Same Way



"Best we ever used."
"Satisfactory; send 50 pounds."
"Very profitable."
"Just what we want."
"Never saw its equal."
"A mighty good thing."
"Very much pleased."
"Used C-S 10 years. It's O. K."
"Ideal in every respect."
"C-S ended our troubles."

Slack running Cling-Surface-treated belts which never slip assure greater transmitting capacity, saving of power, and relief to bearings, pulleys, hangers and shafting that have previously been overstrained by tight belts.

Cling-Surface puts and keeps belts in perfect condition by lubricating internal fibres, giving a clean clinging surface, waterproofing, and permanently preserving the original strength.

You don't have to heat Cling-Surface now before using. Send us a trial order and see for yourself what economies can be secured.

Ask for literature.

Cling-Surface the life preserver for belts

Cling-Surface Co
1029 Niagara Street
BUFFALO N Y

New York Atlanta Chicago
Boston Memphis St Louis
Denver Toronto Etc
London Thomas and Bishop
119-125 Finsbury Pavement

86

SAY I SAW IT IN BRICK AND CLAY RECORD

loads of his brick, used mostly in the new Northern Pacific depot built at that point.

Ohio

The Banfield Clay Company of Irondale, Ohio, has increased its capital stock from $100,000 to $200,000.

The Empire Tile Company has been incorporated at Cleveland, Ohio, with a capital stock of $10,000 by D. Helmuth.

Fire that caused a loss of $5,000 and endangered the lives of six horses, destroyed the warehouse of the Cleveland (Ohio) Builders' Supply Company at St. Clair avenue and East 67th street, Sunday, August 27.

Robert L. Beck, Cleveland, Ohio, has taken over the agency in that city for the Claycraft Brick Company of Columbus. This firm specializes in the manufacture of face-brick. Mr. Beck reports conditions as excellent in his line.

The National Tile and Marble Company, Cleveland, Ohio, has been incorporated with a capital of $10,000, to deal in tile and marble. The incorporators are E. S. Byers, Carl D. Friebolin, Ada E. Gillard, Edward W. Dissette and Harry H. Rose.

The Prospect Mantel and Tile Company, Cleveland, Ohio, has been incorporated with a capital of $5,000, to deal in mantels and tile. The incorporators are Philip Spira, W. K. Stanley, Joe B. Mannis, Emil Siedberger and E. M. Greenwald.

J. M. Adams, secretary and general manager of the Ironclay Brick Company, Ruggery building, Columbus, Ohio, reports business as holding up well. Trade is all that can be expected at the present time. The car shortage is growing worse, delaying shipments considerably. There is also an increase in the labor shortage, which is having a bad effect on production of most of the factories in this district.

H. F. White, manager of the Hocking Valley Products Company's brick department, in Columbus, Ohio, reports a good demand for brick. In fact the demand is far in excess of the supply at this time. One of the worst features of the trade, according to Mr. White, is the lack of cars, which is delaying shipments to a large extent.

The Great Western Sewer Pipe Company has been organized at Junction City, Ohio, by William Guinsler, who is president, and W. E. Guinsler, secretary. W. B. Stratton of Pittsburgh, an experienced sewer-pipe manufacturer, is also interested. The company is capitalized at $75,000. It has acquired rights to a considerable area of raw material near the town, and proposes to begin operations in a comparatively short time.

A meeting of the Ohio Face Brick Manufacturers' Association was held at the Chittenden Hotel, Columbus, Ohio, on August 17, with a large attendance. The meeting was called for the purpose of discussing a number of important trade matters, an all-day session resulting. One of the features was a luncheon. F. A. Hoiles of Alliance, is president of the association. R. D. T. Hollowell, secretary of the American Face Brick Manufacturers' Association was among those present.

William H. Hoagland, general manager of the Claycraft Brick Company, Columbus, Ohio, reports a good demand for all kinds of brick. Records so far are ahead of last year at this time. He says some trouble with a shortage of labor at the various plants of the company is being experienced, but not sufficient to cause any great inconven-

The Activities Of An Industry

are exemplified in the use that is made of the Classified Advertising Columns of the leading publication, such as "Brick and Clay Record" is in the clay-products industry.

Especially is this true when so large a percentage of this advertising is under the captions: "Help Wanted" and "Equipment Wanted." It shows an immediate need of men and equipment to enable the concern advertising to fill orders in hand.

The Classified Advertising columns of Brick and Clay Record have been used for several months to a greater extent than ever before. This is proof of the above contention and also—which is just as significant—that Brick and Clay Record is the recognized "medium of exchange" in this industry.

Are **you** getting the full benefit of this?

ience. The biggest problem is car shortage, especially on the Baltimore and Ohio.

The Stevens-Nixon Chemical Company, which has been incorporated in Cincinnati with a capital stock of $1,000,000, with offices in the Mercantile Library building, has announced its intention of manufacturing not only chemicals, but pressed brick on a large scale. A big plant is to be established in the manufacturing district of St. Bernard, a suburb of Cincinnati, in the Mill Creek Valley, where many large factories are located. Fremont C. Stevens is president of the company, George E. Nixon is secretary and vice-president, and I. J. Stevens is treasurer.

Leroy W. Gaddis of the Gaddis-Harrison Company, large brick and clay products dealers in Columbus, Ohio, said recently: "We have had the best August in the history of the company, both in orders booked and in shipments made. Business has been excellent in every way and prospects for the future are bright. I believe that trade will continue active for the fall season." Mr. Gaddis recently returned from a two weeks' vacation at Devil's Lake, Mich. Charles F. Harrison, the other member of the partnership, left the latter part of August for a vacation at Lakeside, near Cleveland.

R. L. Watson, a dealer in brick and other clay products in Columbus, has just returned from a trip thru Ohio. He reports the outlook very bright, especially in the southern part of the state. Mr. Watson recently secured an order for the terra cotta to be used in six buildings to be erected by the Adam Schantz Estate at Dayton. He also secured the order for the terra cotta for the new building to be erected by the Columbus Cadillac Company, on the southwest corner of Broad and Sixth streets, Columbus. Mr. Watson has the agency for about a dozen factories, his territory covering a radius of seventy-five miles surrounding the Buckeye capital.

In the Ohio news notes, published in the August 15 issue of "Brick and Clay Record," a statement was made that another large order had been secured by the Farr Brick Company of Cleveland, which had just closed a contract for 3,000,000 common-brick, to be used in the new Lakewood (Ohio) High School. Since the publication of this item we have been informed by the Farr company that the item was incorrect, the error arising from a misunderstanding, on the part of our correspondent, of a statement made by Robert C. Mitchell, general manager of the company. The fact of the matter is that the contract for this particular job has not as yet been let, but is soon expected to develop.

Oregon

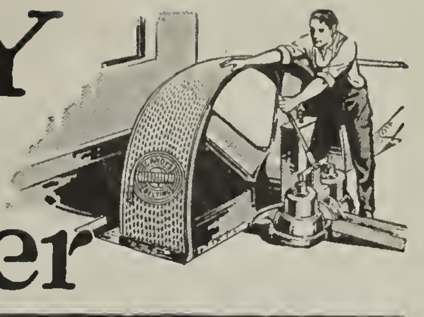
The plant of the Sutherlin (Ore.) Tile and Brick Company, after a year of inactivity, will begin operations shortly and, it is expected, will remain in operation until late in the fall. Samples of the clay that have been tested have indicated a high quality, it is said, being especially adapted to the manufacture of pressed brick.

Pennsylvania

S. H. Yoder of Blandon, Pa., recently sold his clay plant to Lawrence Grogan of Shamrock. Mr. Grogan will make a number of improvements and begin mining clay as soon as the changes can be made.

Fire which originated in the blacksmith shop connected with the brickyard of Milton Kline recently spread to the latter and did $300 worth of damage. Kline's yard is the leading brick plant at West Reading, Pa.

GANDY and Water



"At times during the night the water in our wheel pit rises as much as three feet, thus covering the lower portion of the belt; at such times it is necessary for us to pump the water out of the pit before starting up in the morning, and wipe the belt off with a piece of waste and start up.

This belt has been running for several years and working under the unfavorable conditions it does, we have no fault to find with it."

ORDINARY belting cannot stand up if subjected to the ravages of frequent wetting. Here Gandy differs from ordinary types of belting.

While all users of belts do not experience the "flooded wheel pit" trouble, this immunity to water and the other advantages that Gandy Belts possess in being proof against dust, heat, gas, steam and oil provides a measure of dependability that is invaluable in preventing shut downs when the unusual *does* occur.

Our Service Department which is under the direction of competent engineers, will advise you in an entirely unbiased manner whether or not you can use Gandy with profit.

You will not obligate yourself in the least by describing the belt service you require.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch
36 Warren Street

Vitrify Your Ware Clear to the Bottom Cut Out the "Salmon"

It can easily be done in Hook downdraft kilns. Here is what our customers say:

"The brick in the bottom are thoroughly vitrified—without overburning the top."

"Even the bottom ware rings like a bell."

"You can't tell the bottom tile from the top."

"We get good uniform ware from top to bottom."

"This is the best type of kiln I have ever seen to burn on the bottom."

Names and addresses of above concerns furnished upon request.

Produce better ware—with less fuel—in shorter time. Test this system in one kiln—no obligation to keep it unless perfectly satisfactory—it is sold on its merit.

Let us figure the cost of changing your kilns or building new ones.

Bands, grates and all kinds of kiln accessories.

Hook Patent Kiln Co.

614-15 Commerce Bldg.,
COLUMBUS, OHIO

Incorporated with a capital stock of $500,000, the American Ball Clay Company has been organized at Philadelphia, Pa., to deal in clay and other mineral substances. R. Willis Fleu, Ralph Haus and C. W. Gouert are the incorporators of the new company.

The Hay Walker Brick Company has increased the capacity of its plant at Templeton, Pa., from 95,000 per nine-hour day to 125,000 in the same amount of time. A new tunnel drier has been completed and a 150-h. p. boiler is at present being installed.

The new plant of the Kittanning (Pa.) Buff and Gray Brick Company is soon to be placed in full operation, the first burn having just been made. This is a new factory designed along modern lines and, while the kiln battery at present is a small one, consisting of only two units, it is the intention of the company to erect twenty-four before the full capacity is reached.

The Clydesdale Brick and Clay Company, Pittsburgh, Pa., of which H. J. Orth is president and W. W. Cunningham, vice-president, has recently begun the manufacture of wire-cut-lug paving-brick. This company has acquired a new plant at Ellwood City, Pa., with a daily capacity of 100,000 pavers. It is the intention of the company to double this capacity in the near future.

Owing to greatly increased business, S. B. Dobbs, a prominent face-brick dealer of Philadelphia, Pa., has been obliged to enlarge his quarters, and has secured additional space adjoining his present office. When the change has been made, Mr. Dobbs will occupy rooms 303 to 305 in the Bailey building, 1218 Chestnut street, where he will add materially to his already extensive face-brick exhibit.

The big plant of the Glen-Gery Shale Brick Company at Reading, Pa., was again placed in operation recently when the three Gery brothers lighted the fires with the same silver torch that they had used to touch off the first burn sixteen years ago, at the time the plant was originally started. Financial difficulties have tied up this plant for the past nine years. It is expected, now, however, to produce one hundred thousand brick daily, many repairs having been made and the plant put in excellent condition. The kiln in use here has a capacity of two million brick and a drier on top of it holds 250,000 brick.

* * *

LIBERAL EDUCATION *in* CERAMICS PACKED *in* THREE DAYS *at* SUMMER MEETING *of* SOCIETY

(*Continued from Page* 402)

ous divisions had gone. In such a state what could have been more appropriate than a swim, and swim they did—that is some of them. Hastening into the waiting automobiles, the party made its way to Forest Park Highlands—a full-fledged amusement park of which A. C. Steuver is president, who is also the chief executive of the Highland Fire Clay Company.

This park includes a very fine swimming pool and, without much delay, the ceramists divested themselves of their superfluous clothing and jumped in.

Clean and refreshed from the day's activities, the party repaired to the dining pavilion where it was served with a chicken dinner. Tickets were then distributed for a vaudeville show at the park and those who wished to go did so as the guest of Mr. Steuver.

On the following day—Friday—the ceramists went to Alton, Ill., on one of the Eagle Packet Company's boats to inspect the plant of the Illinois Glass Company and the Alton Brick Company. Inasmuch as both of these factories have been fully described very recently in the columns of "Brick and Clay Record" in connection with the report of the quarterly meeting of the Institute of Paving Brick Manufacturers, held in July at the above point, it would be unnecessary and superfluous to retrace this ground at this time.

Upon its return to St. Louis via boat that evening the party broke up with the decision that it would be hard to find a parallel for the nineteen-sixteen summer meeting in good fellowship, hospitality and instructive value.

THOSE WHO WERE RESPONSIBLE FOR THE GOOD TIME

The responsibility for the splendid results of the meeting may well be laid at the door of the committee chairmen, who were headed by H. A. Wheeler, chairman of the local committee, Gale R. Truman at the head of the reception committee, R. D. Hatton who looked after the funds and Dwight T. Farnham who led in the planning of the excellent program.

The personnel of the reception committee was as follows:

I. Mandle, S. Mandle and Fred S. Ball of the Mandle Clay Mining Company; C. W. Berry, J. L. Green and R. D. Hatton of the Laclede-Christy Clay Products Company; E. L. Blackmer of Blackmer and Post Sewer Pipe Company; R. F. Grady of the St. Louis Terra Cotta Company; R. S. Rhoads, W. J. Volz and G. D. Morris of the Evens and Howard Company, and G. E. Thomas of the Highlands Fire Clay Company.

THE REGISTER FROM OUT-OF-TOWN

In addition to those above mentioned, the following is a list of those who attended from points outside of St. Louis:

R. D. Ferguson, treasurer, Yankee Hill Brick Company, Lincoln, Neb.; Herbert Forester, Cleveland, Ohio; G. A. Rankin and C. E. Fulton, Pittsburgh Plate Glass Company, Creighton, Pa.; I. E. Hardy, superintendent, Tiffany Enamel Brick Company, Momence, Ill.; J. W. Hasburg, president, J. W. Hasburg Company, Chicago, Ill.; A. P. Hottinger, Northwestern Terra Cotta Company Chicago, Ill.; Dr. F. W. Washburn, director, ceramic department, Ralph Kent Hursh, instructor, F. A. Kirkpatrick and R. A. Steinmeyer, students, of the University of Illinois, Urbana, Ill.; I. J. Kirk, president and general manager, Universal Sanitary Manufacturing Company, New Castle, Pa.; J. F. Krehbiel, Advance Terra Cotta Company, Chicago Heights, Ill.; J. S. McCann, superintendent, Streator (Ill.) Clay Manufacturing Company; H. W. Moore, Atlantic Terra Cotta Company, Tottenville, N. Y.; G. L. Rogers, American Refractories Company, Danville, Ill.; R. W. Greene, Mansfield, Ky.; A. L. Walden, National Carbon Company, Cleveland, Ohio; Robert L. Hare, Fulton (Mo.) Fire Brick Company; L. E. Rodgers, Zanesville, Ohio; M. F. Beecher, Norton Company, Worcester, Mass.; A. P. Potts, Mason City (Ia.) Brick and Tile Company; F. Brand, Hinde Brick and Tile Company, Sandusky, Ohio; T. A. Randall, secretary, N. B. M. A., Indianapolis, Ind., and Edwin G. Zorn, editor, "Brick and Clay Record."

Here's a statement that goes for its full face value—one hundred per cent—and we are ready and willing to prove it—you can place the burden on us if you will—here it is:

IN EVERY CLAY PLANT WHERE THE "PROCTOR" DRYER HAS EVER BEEN INSTALLED, IT IS STILL BEING USED—IT IS GIVING THE SAME GOOD RESULTS AS FORMERLY—AND IN NO CASE IS THERE ANY INTENTION TO DISCONTINUE ITS USE

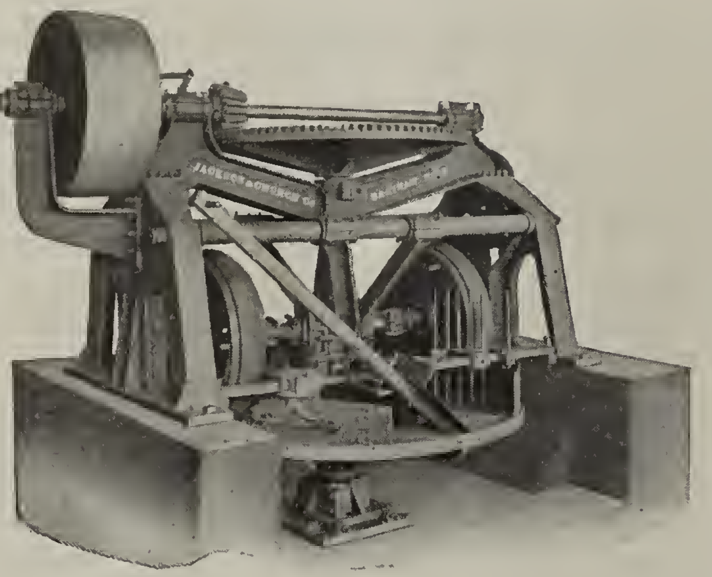
We make this statement knowingly and advisedly, and like every other statement we have ever made, it is backed by our reputation and our financial responsibility.

The "Proctor" Dryer Continues to Dry Conduit in Sixty Minutes.

THE PHILADELPHIA TEXTILE MACHINERY CO.

PHILADELPHIA, PA.

Hancock and Somerset Streets



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

A Remarkable Performance

Over four hundred miles of good and bad roads (mostly bad), a party of over 100 Detroiters, members of the Detroit Board of Commerce Good Roads Committee and Good Roads Advocates from all parts of the country, left Detroit, in twenty automobiles, on the morning of July 10th for a trip over the East Michigan Pike.

The East Michigan Pike is an extension of the Dixie Highway. It begins at Toledo and passing thru Detroit, Pontiac, Flint, Saginaw, Bay City, Alpena and Cheboygan, terminates at Mackinaw City, joining what is known as the West Michigan Pike, a route extending along the west coast of Lake Michigan from Mackinaw to Chicago. The whole route, when completed, will be a loop of the Dixie Highway.

Last year three path finding cars containing members of the Good Roads Committee of the Detroit Board of Commerce, went over the route, and succeeded in arousing considerable enthusiasm for good roads. This year a similar trip was made, but with a larger delegation. Stops were made all along the route, good roads meetings were held at every city, village and four corners, and a tremendous amount of enthusiasm for good roads was aroused.

A band, sent by the Ford Motor Company, furnished the music. One of the striking features of the trip was the record made by a Federal one and one-half ton truck. This truck carried the baggage for all the tourists, and during the whole trip over the 400 odd miles of roads between Detroit and Mackinaw City it never faltered, not a single adjustment was made on the entire trip. In addition, the truck kept on the pleasure car schedule, arriving in Mackinaw ten minutes behind the tourists in the pleasure cars.

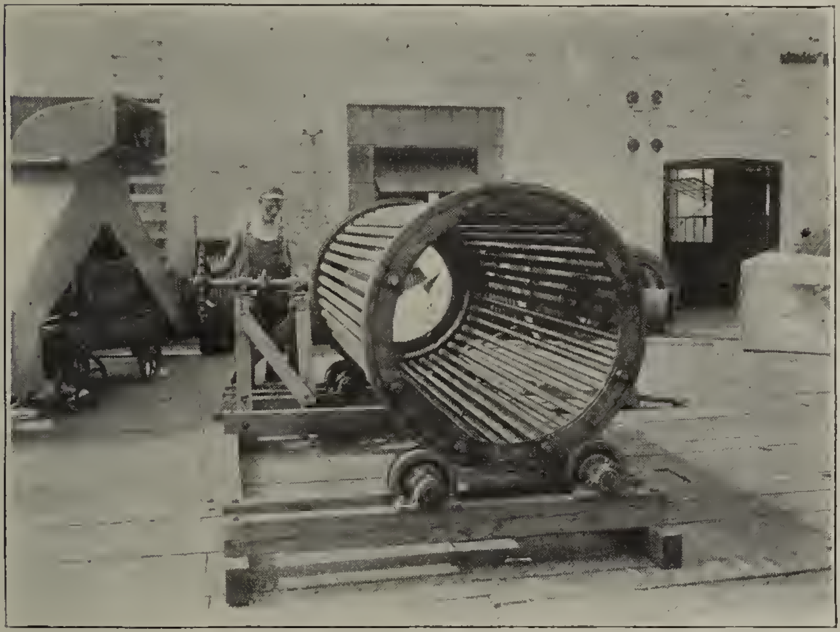
The truck was a standard one and one-half tonner, Model "M," 144 inch wheelbase, equipped with a regulation army body with a tarpaulin top. In addition to the 75 odd suit cases and travelling bags carried by the truck, ballast consisting of 600 pounds of iron was taken along. The driver, Jim Marsh, who made the entire trip from Detroit to Mackinaw, driving the whole distance, earned

The Federal Truck Which Recently Made Such a Splendid Record on the East Michigan Pike the title of "Iron Man Marsh." Marsh was accompanied by Photographer Mitchell of the Federal Company.

The road from Detroit to Mackinaw is a test for any car or truck. The conditions of the road vary from a few miles of concrete to several miles of macadam and crushed stone, and several hundred miles of sand and gravel, principally sand. Much of the latter part of the trip was made thru the jack pine plains of Northern Michigan. There was nothing to do here but stick in the roads, for the sand is deep, and once you get off the road it is easy to get lost and stuck. Part of the way was over corduroy roads, and no truck ever received such an exacting test as did this one and one-half ton Federal.

Wherever the Federal went it created a great deal of interest, for in many of the places the farmers who gathered at the road meetings had never seen a motor truck before. It opened their eyes to the possibilities of transportation in these counties in Northern Michigan, where farms are far apart and distances are great.

It will be some time before the East Michigan Pike will be completed, but when it is, it will form an interesting drive, and in addition it will open up thousands of acres of valuable land for agriculture. The project to build such a pike is being fostered by the Good Roads Committee of the Detroit Board of Commerce. The men behind it do not plan to give financial aid, but rather to arouse interest, so that the farmers will build the roads that they are entitled to under the State Reward Act. M. L. Pulcher, vice-president and general manager, and George W. Cushing, advertising manager of the Federal Motor Truck Company, are members of this committee.



Weller Revolving Screen Referred to in Item Below

Weller Revolving Screen

A splendid type of revolving screen for certain purposes, is illustrated herewith. It is made of pipes or bars, and is of the double-trunnion type, open at both ends, and is one of the Weller-Made line of screens made by the Weller Manufacturing Company of Chicago.

The capacity is naturally very large, and the screen is well adapted to handling hard clays or shales where it is desired to by-pass the small material, instead of running it all thru the crusher.

Keeping the Boilers Clean

Clay plant managers generally have been so engrossed in new machinery, new methods of burning and drying, and other changing conditions concerned with the actual manufacture of clay products, that until now the power plant has been too much overlooked. However, with increasing fuel costs, and with increasing difficulties in the securing of competent labor, more attention each season is given to obtaining greater efficiency in the boiler and engine room.

Unless the water that is used in the boilers is properly filtered and treated before being used, there is bound to

Westinghouse Motor Driving a Dry Pan

Why Motor Drive Is Best

No. 1

Throw off the belts from all machines and test the power it takes to operate the line shafts— you will be surprised to discover what a large percentage of power is wasted.

Westinghouse Individual Motor Drive

with central station power—saves power bills—when the motor stops the power cost stops—machines can be arranged so that handling of materials is reduced to a minimum.

A card brings Booklet 3072

W WESTINGHOUSE ELECTRIC

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.
Sales Offices in All Large American Cities

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

be trouble from boiler scale. And it is pretty safe to assume that nearly all clay plants have trouble from this source.

It is certainly much less expensive in the end to remove this boiler scale, because if it is left there it requires more fuel to get a certain steam pressure, and it also causes more rapid boiler deterioration.

The Illinois Boiler Cleaning Compound Company, Unity Building, Chicago, make a scientific mixture that is doing fine service in power plants. One of the large Akron, Ohio, brick companies recently gave their product a trial, with the result that such satisfactory service was obtained as to cause them to send in an order for one hundred pounds, to be rushed to them by express. This has been the experience with practically every concern that has given this product a trial, so it certainly seems worthy of consideration.

C. Hook Remains in Vigo

C. Hook, of Ohio Kiln Company, Vigo, Ohio, remains in that city. He has no interest in any other company but continues his associations with J. E. Wiltshire at Vigo, which is the only office of the company mentioned above. This company is marketing The Improved Hook Patent Up and Down Draft System for kilns.

The Ideal Kiln Grate

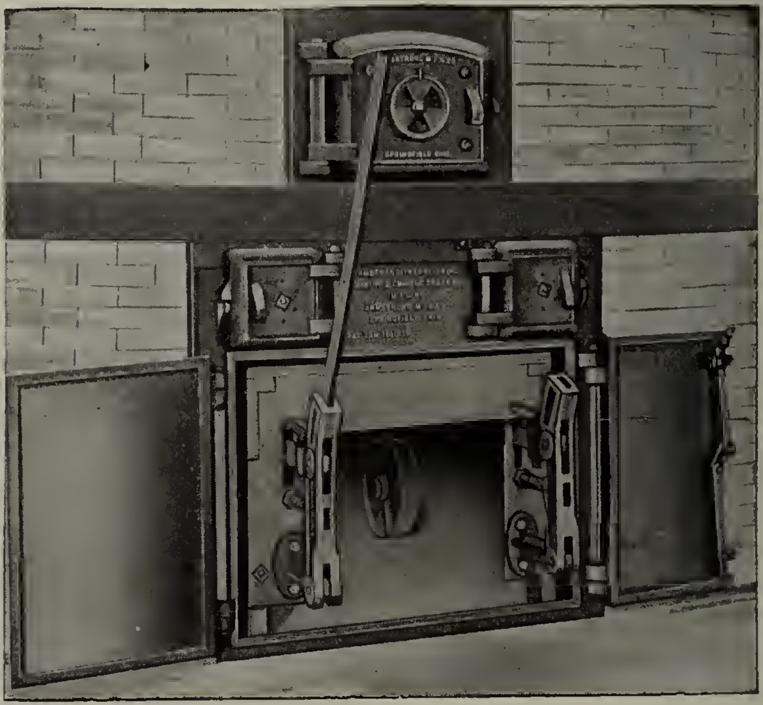
The *ideal* kiln grate is not a dream—it's a reality, and it is demonstrating its practicability every day. It is the composite product of a life-long foundry man who knows how to build grates, and a brick plant manager who knows kilns and the requirements of the kiln grate that has a right to be called the "ideal."

The Armstrong is the name of the kiln grate. It is portable, interlocking, self-contained, shaking and dumping.

The interlocking fingers enable you to sift the ashes gently from beneath the fire without disturbing the fuel bed, and to keep all the air spaces open as no other grate can. One movement of this dumping device entirely cleans the fire, and clinkers six inches thick are easily handled.

The Armstrong grate locks rigidly in a perfectly flat position—the fingers never protend above the surface. Each grate and operating device is mounted and evenly balanced on a truck so the entire bed of fuel can be instantly removed whenever desired. Also, the front is designed to fit any kiln shape, and has handy door openings for charging, inspecting, leveling, exit and entrance of grates, and regulation of air supply.

The Armstrong Kiln Grate is made by the Armstrong Manufacturing Company of Springfield, Ohio. They ship

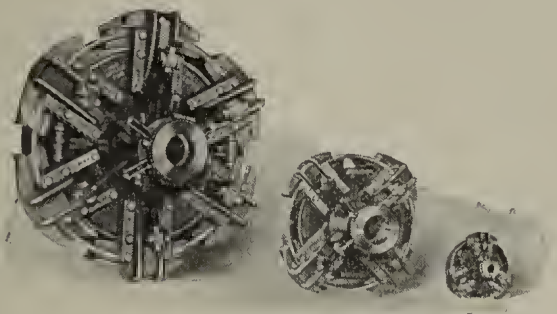


Armstrong Kiln Grate Which Many Clay-Products Manufacturers Are Using with Satisfaction their grate to any clay plant anywhere and install it at their own expense. If it is not satisfactory they remove it without a cent of cost to the clay plant owner. Many have recently taken advantage of this unusually fair offer.

The Efficient Part

When the efficiency engineer comes to a plant to study and diagnose the conditions, he knows that in the great majority of cases he will find a series of petty faults that tho small in themselves produce an accumulation of trouble and delay that is sufficient to keep the plant always struggling financially, and usually in an unprofitable state.

It isn't a far call, in fact it is apropos to state that "in union is strength." The small part, the fractional part of each machine, each unit, must do its allotted work constantly and must do it well if the entire system is to produce efficiently.



Smith Type of Hill Clutch

For instance, if the clutches on the crusher, pans, presses, pugs, augers, etc., do not work right, if they slip and throw out under heavy duty, an aggravating condition arises that causes high repair bills, and hours loss in time, inevitably resulting in less than a maximum output of ware.

On clay plants particularly, it seems common to find that clutch trouble is prevalent; this may be due in part to conditions under which the clutch is required to work. The duty is heavy, the load is usually intermittent, and the atmosphere is dusty. In the majority of these cases tho it is trouble caused by an improperly designed clutch.

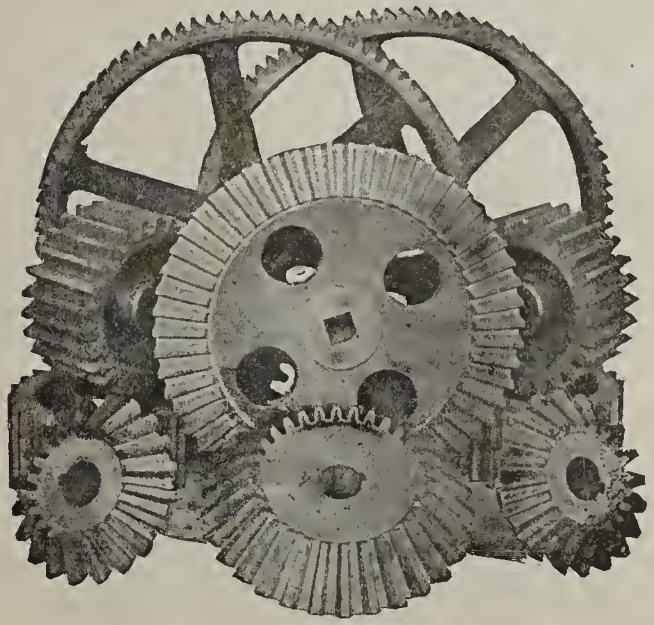
There is one clutch that is a leader in clay plants, the Smith type Hill Clutch. The Smith type is very dependable and has great mechanical ability and large starting capacity, two very essential features for the class of work encountered in clay plants as indicated in the paragraphs above.

All parts are easily accessible to quick adjustment, and after adjustment to conditions it stays adjusted under ordinary and usual working conditions.

The vicelike jaws grip the ring in pairs, and no springs are used, the clutch is self-centering.

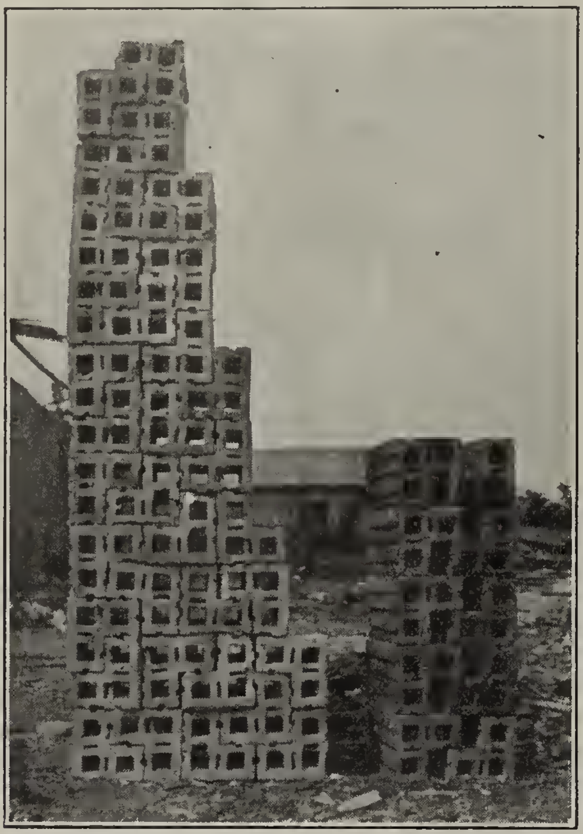
Hook's Improved Up-and-Down Draft Kiln System Installed in this Plant by The Ohio Kiln Company, Vigo, Ohio

All good brick machines are equipped with
NUTTALL
Cut-Steel
GEARS



Too many brick machines that are otherwise good do not measure up to expectations because they are made with cast tooth gears. If your machines are in the "otherwise" class go out and keep your eyes on the gears. It won't take you long to realize why you don't get all the capacity you expected, or why your power fuel costs are too high.
Change your present machines to cut steel gears—then insist on cut steel gears on future purchases, and you'll cut down power cost and repairs.
Ask us for Bulletin No. 19.
NUTTALL—PITTSBURGH

"Samson
Interlocking Tile"
Patented



In the above cut a construction of Samson Interlocking Tile is shown, which is the most modern form of construction for dry kilns, refrigerators and small residences, as it is almost impossible for moisture, heat, frost or sound to strike through walls built in this manner.

The construction on the left shows a wall commenced at 21 in. and reduced to 9 in. This is an exclusive feature of Samson Tile.

SAMSON INTERLOCKING TILE builds any thickness of walls without the use of other forms of tile, those and other exclusive features make this the most modern building material.

Three tests of SAMSON INTERLOCKING TILE, made at the University of Wisconsin, show respectively the following crushing strength: 1060, 1310 and 1040 lbs. per sq. in. This will give you some idea of the great load bearing capacity of "SAMSON INTERLOCKING TILE."

Write today for Manufacturing rights for unrepresented districts.

W. W. SMITH
Shallow Lake, Ont. Canada

The Smith type Hill Clutch is splendidly illustrated and described in Catalog No. 8, issued by the Hill Clutch Company of Cleveland, Ohio.

This Clam Shell Bucket Digs

Many a clay plant manager has concluded that a clam shell bucket would not be a profitable investment for him, because it would be too expensive to operate. The trouble is, he has never seen the "Lakewood" Clam Shell Bucket work, and if he did, he would change his mind, because the "Lakewood" is unlike any other bucket.

It is essentially a *digger*—it holds its full rated capacity of either wet or dry material without being heaped—it takes only about one-half as much rope for the overhaul as other buckets do, which means quicker action, more trips in a given period, and much greater working capacity.

But what is still more significant, is the fact that the "Lakewood" always comes up with a full load—it can't lose any of the material it grabs. This is due to the fact (peculiar to "Lakewood" alone) that the shears are fastened to the arms so that the pressure exerted to force the arms together is considerably greater than the lifting tendency. Hence the bucket *digs* with great force, and when it is pulled up it has a "mouthful."

Lakewood buckets are made in different types, sizes and weights to meet the various individual requirements. They are described in detail in Book No. 17 of the Lakewood Engineering Company of Cleveland, Ohio.

The Cost of Clay Cars

How long do your clay cars last you? How many hours per year are they in actual use? How many hours do your men spend repairing them? How much do repair parts cost you each year?

If you can't answer these questions then you don't know whether the cars you are using are cheap or dear—yet you certainly ought to know. Present day competition and

Brown Electric Recorder

disturbed labor conditions make it absolutely necessary, as a requisite to success, that each manufacturer equip his plant with appliances that will give the maximum of service with a minimum of cost. And in this connection things that are cheap in first cost are nearly always the dearest in upkeep.

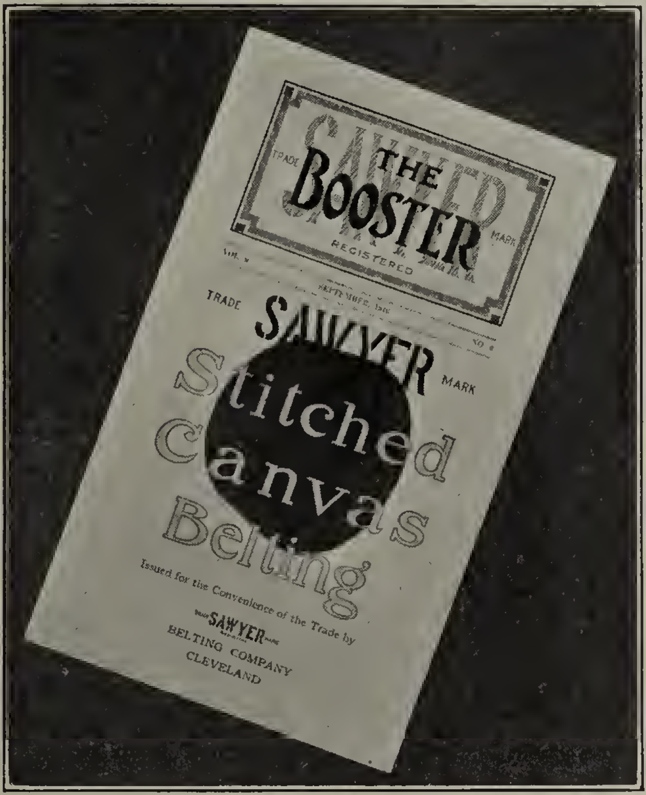
Because they realize the significance of this, many of the most successful clay plant managers have chosen the "Youngstown" Clay Plant Special as the most economical clay car. Not because it is cheap, but because it gives such remarkably fine service. It is made by the Youngstown Steel Car Company at Youngstown, Ohio—"in the heart of the steel industry."

The Youngstown plant is equipped with special modern machinery designed to produce a high-class product at lowest manufacturing cost. This company also has its own foundry, where it turns out the famous "Youngstown" chilled wheels, used on Youngstown clay cars.

Youngstown cars have been used in the clay products industry for many years, and concerns that bought them years ago continue to use them exclusively. They are the kind of cars that actually give the maximum of service at the minimum of cost.

Sawyer's "Booster"

The Sawyer Belting Company of Cleveland, Ohio, have been catering to clay-products manufacturers for so many years, and their product is so favorably well-known in the industry that they naturally are getting constant boosts from every section. It is therefore quite proper that this company's publication should be known as "The Booster."



SAWYER TRADE THE BOOSTER MARK
REGISTERED

TRADE SAWYER MARK
Stitched Canvas Belting
Issued for the Convenience of the Trade by
SAWYER
BELTING COMPANY
CLEVELAND

You Want to Make the Acquaintance of Sawyer's "Booster"

The September number has just made its appearance and it's full of interesting news items regarding the good deeds of Sawyer Belting, and also contains a complete list of Roll Stitched Canvas Belting carried in stock.

One of the most significant statements in the issue is this paragraph: "You can't make customers of all your friends, but you can make friends of all your customers." That epitomizes the reason for Sawyer popularity and success, and it's a good motto for every business concern to adopt and practice.

The Brown Instrument Company, Philadelphia, Pa., the well-known pyrometer manufacturers, opened an office in Detroit, Mich., September 1st. It is located at Rooms 612 and 613 Chamber of Commerce building, and is in charge of William Printz, formerly assistant sales manager.

"IT DIGS BEFORE IT PULLS"

The Lakewood Clam Shell Bucket

is a regular "glutton"—it always grabs a mouthful and comes up filled to the brim. There is no lost motion because it's a **digger** as well as a bucket.

If you have ever watched the ordinary clam shell bucket you know that just as soon as the cable pulls at the center there is a tendency to pull the bucket off of the material.

But the Lakewood overcomes this fault by having the sheaves arranged so that the pressure exerted to force the arms together is considerably greater than the lifting tendency, hence the bucket digs with great force.

This is only one of many reasons why Lakewood Clam Shell Buckets are now preferred in the clay products field. Will you let us send you complete data on this?

Lakewood Engineering Company
CLEVELAND, OHIO

We also make cars of all kinds, track layouts, transfer trucks, steel pallets, turntables.

World's Highest Quality in Clay Working Machinery

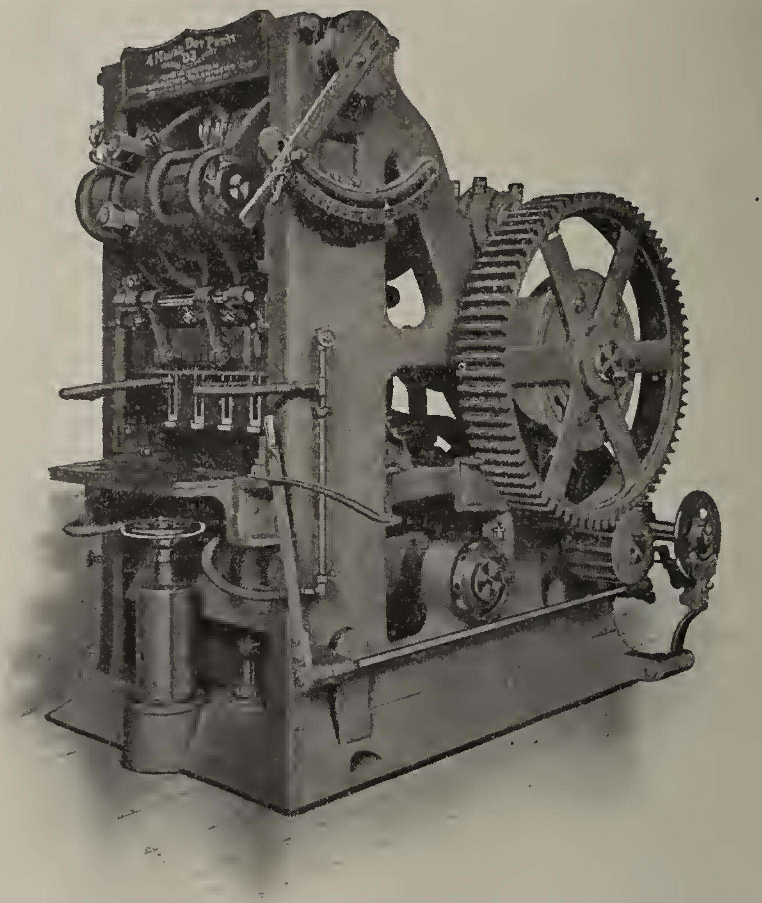
THE AMERICAN CLAY BUILT RIGHT RUN RIGHT MACHINERY COMPANY

American D-3 Dry Press

The American D-3 Dry Press is a standard of excellence in dry press construction. It has great strength, rigidity, power and a quality of material and workmanship which cannot be surpassed. It's "Built Right and Runs Right."

Ask for our bulletin on this or any other dry press machinery.

The American Clay Machinery Co.
Bucyrus, Ohio



American D-3 Model Dry Press

American Steam Shovel

American Steam Shovel

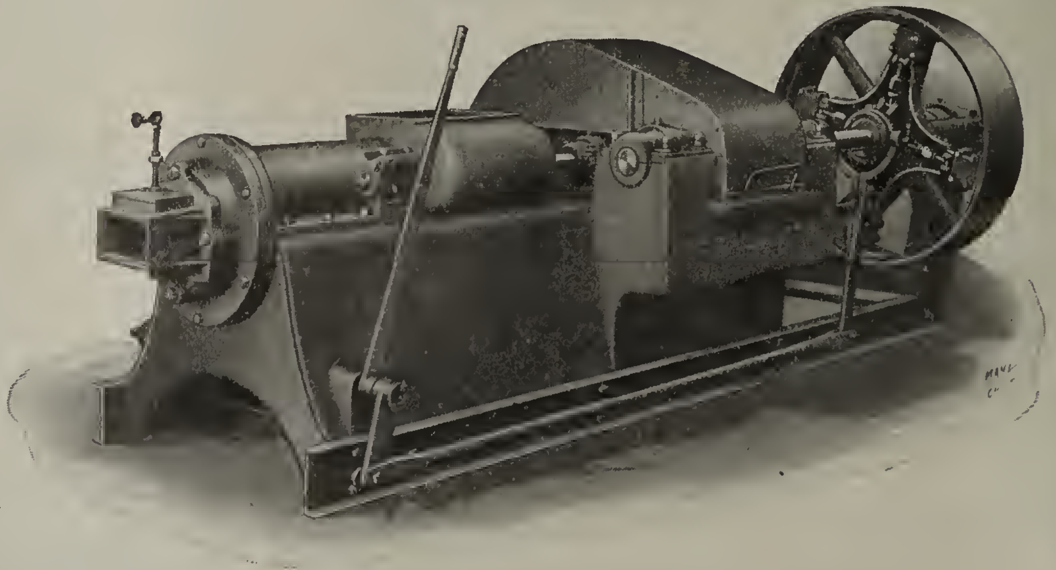
The American Steam Shovel is built especially for the Clay Workers. Strong, handy, easy to operate. Full swing with 7/8 yard capacity but strength for a full yard. Ask for catalog.

The American Clay Machinery Co.
Bucyrus, Ohio

American No. 233 Auger Machine

The American, No. 233 Auger Machine has a record of performance not found in many machines of larger proportions. It is built to produce and does it. Its design is strong enough to back its capacity. No excessive repairs. Get Bulletin.

The American Clay Machinery Co.
Bucyrus, Ohio



American No. 233 Auger Machine

World's Largest Manufacturers of Clay Working Machinery

SAY "I SAW IT IN BRICK AND CLAY RECORD"

BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

Comment, Criticism and Advice on Live Issues Affecting the Manufacture, Marketing and Manifold Uses of Burned Clay Products

THAT distinctively low prices will not obtain in America after the European war has ceased, is very logically proved in a circular letter issued recently by the Laclede-Christy Clay Products Company of St. Louis. While there is little doubt but that prices will take a sudden dip upon peace being declared—as is shown by the replies to the question "What is Going to Happen When the War Stops?" put up to 1,478 big business executives recently—precedent dictates that prices will quickly recover to a higher level than they were before the war.

There are a good many builders, capitalists and manufacturers that are holding off, waiting for a recession in the present high prices of labor and materials. We believe that we have the sentiment of those who are closely in touch with the situation back of us when we say that we believe such are making a big mistake following the course of watchful waiting. There is no indication that prices will go down for some time simply because there is no sign of a let-up in the European conflict for several months to come and, in view of the fact that everything points to a higher price level even after peace is declared, it would seem that there is nothing to be gained in holding off on building or any other operations.

If a prospect tells you that he is waiting until he can build more cheaply, you tell him that he is losing money and making the prompt delivery of his order doubtful, while he is waiting.

A Business Corner Stone

IN A RECENT ADDRESS before the annual meeting of the Ohio Bankers' Association at Columbus, September 13th, Edward N. Hurley, chairman of the Federal Trade Commission said in part:

"Among the essentials of efficiency in any business, correct and adequate knowledge of that business is the first. That is the foundation, and the cornerstone of a knowledge of business is the knowledge of *costs.* But the unfortunate fact is that a large proportion of the business men of the country do not know their costs accurately. Most of the big companies have good cost systems, but thousands of the smaller concerns have neither adequate nor accurate cost accounting.

"Many concerns that report to the Federal Trade Commission manufacture four or five different articles. In these reports we ask them to give us the sales of each product separately, and nine times out of ten they cannot do more than give us the total for all their products together. If they do not departmentalize their sales accounts they certainly do not departmentalize their costs; hence they make prices on particular articles without knowing what those articles cost. Since they cannot tell where they are making money and where they are losing it, they cannot tell where to introduce economies."

If the above description fits your concern, don't you think it is time you began to do something about installing a cost system? It is entirely unnecessary for us to point out the advantages of knowing the *exact* situation in each and every department as regards the cost at which it is operating.

You may say that you know what it is costing you to make your ware, *but do you?* Have you taken into consideration everything that should rightfully enter into your cost?

Better follow the articles and tables in "Cost Accounting for the Clay Plant," an installment of which appears in every issue of this magazine. You may be able to discover where you can improve upon, or even locate an important fault in your present method of keeping costs.

Experiment and Research

THERE EXISTS, without credit to those engaged in the manufacture of clay products, a feeling, that at times seems quite noticeable, in opposition to experiment along technical lines in order to hit upon a shorter and more simple way of performing certain operations.

Strange as it may seem, this feeling does exist. While probably not in aggressive form, it is exhibited in the lack of experimental facilities in connection with the average clay plant. There are few, very few concerns that have a well-equipped laboratory.

But did it ever occur to you that the manufacturer who does not believe in "wasting" time in research, is often daily conducting experiments of such vast proportions that the cost is tremendous and the risk enormous, altho he may not realize it. He is experimenting with the entire capacity of his plant and with the total value of his investment when he persists in learning things thru "experience." By "experience" he means the making of costly mistakes.

Yet, to this same manufacturer, a capable ceramic engineer is a useless ornament masquerading as an expert whose only business is to wring a few dollars from the all-too-little profits of the plant and perform no duty worthy of a monetary consideration.

The investment of time and money in working out methods and processes on a small scale, while it may seem to be a useless expense to the unthinking individual, is in reality the master key to cost cutting. There are so many short cuts and conveniences that may be uncovered by a little research that it is surprising more manufacturers do not give some further attention to this part of the plant's operation in addition to the actual making of the ware

A ceramic engineer should be a part of every moderate size plant for, if he is aggressive and energetic, he can save more than his salary in improvements that he can make in the handling of the product from the pit to the loading platform.

A "Knock" on Efficiency

"ANY EFFICIENCY SCHEME," says the president of a large life insurance company, who thinks he is sounding a timely warning on the subject, "that fails to take count of human life, cannot accomplish its object." He further says that the greatest mistake of the age is the "speeding up" which wears men out in middle life. They get more done in the first few years of their maturity but that gain is far more than matched by the loss of a long period of years when they should be giving efficient service. We further quote from his statements:

"Think of the value of human lives snuffed out at fifty-five, which is when these lives have reached their maturity, when knowledge has become wisdom and judgment has become well balanced—the fifteen years of the choicest part of their lives snuffed out. A man should be at his best up to seventy. If a man disappears from active service at fifty-five, he is inefficient, no matter what he has done before that time—inefficient because he has thrown away the ripe fruit of all his life."

"We agree with the sentiments of this man," says the editor of the "Pennsylvania Farmer." "It may be good for a firm to teach Smith how to handle 25,000 brick in the time it takes him now to handle 15,000 but we doubt the effect on Smith. A man can do just so much work in seventy years. If he does it in fifty-five years he pays for his 'efficiency' by a toll of life."

Correcting the Error

IF THE REMARKS of the writer last mentioned are to be taken as applying to scientific management and its relation to the clayworking industry, we wish to make use of this opportunity to state that the arguments advanced above against efficiency are entirely unfounded in a large majority of cases.

Scientific management or the obtaining of efficiency in an industrial establishment does not make the foreman a slave driver. It does, however, set each and every employe, who works under such a system, up in business for himself. Scientific management does not ask a workman to do more than he is able but it weeds out the loafer and the employe who practices systematic soldiering, putting a premium on industry and automatically condemning the sluggard.

In order that you may be convinced that we are absolutely right in our stand in this matter, we refer you to the article appearing on page 403 in the September 5 issue of "Brick and Clay Record" under the subject: "The Application of Scientific Management to Burning Clay," and the first part of Mr. Farnham's article in this issue, which appears on page 503. This writer shows in these articles, in a manner that is indisputable, how scientific management or the securing of efficiency redounds to the profit of the employe in addition to increasing his sense of self-respect and honesty towards his employer. It does equally as much for the man who hires workmen as it does for the workmen themselves, as will be seen by a careful study of these articles.

Referring again to the editorial that appeared in the "Pennsylvania Farmer," we are glad to note that the editor does not take an uncompromising stand toward efficiency, for he goes on to say:

"However, the 'snuffing out' of lives in their prime is not all due to overwork. In fact, we believe that far more lives are shortened and made miserable by excesses in other ways —all due, however, to the lack of knowing how to be efficient."

This brings up another matter concerning which there is a long story but the principal point which we wish to emphasize is that the president of the life insurance company above quoted is entirely wrong if he refers to the proper working out of scientific management in the nation's industries. It is very evident that he has been startled by a false alarm, fearing that efficiency might harm his business.

Brick Paving Can Help

AN interesting advertisement appeared in a recent issue of one of the large engineering papers, signed by a prominent paving-brick manufacturer. The catch line of this ad. was *Must We Do "Has Been" Hauling to Save "Has Been" Roads?*

The extended use of motor trucks has come almost over night and, as usual, has caught the nation unprepared in the matter of good roads. It is easy to protect soft pavements by restricting the weight of the trucks. This, of course, is such a simple method of solving the problem presented by inadequate roads that many municipalities have adopted it as a panacea for highway ills. They restrict hauling to obsolete, horse-drawn, light vehicles and wagons in order to preserve "has been" roads.

The thought which is expressed in these head lines and in the explanatory matter that follows is very good and should make a lasting impression on many engineers who have in their hands the writing of street and road specifications, and upon those who are spending the people's money for highway improvements.

The public should realize that it hurts the community not to have adequate roads radiating from the town. When the people arrive at this point, paving-brick will come into its own for none can deny that it is the best of all materials for a road upon which there is much motor truck traffic.

A Menu in Advance---

that's just what this page of announcements for *Next Issue* is. Something like being invited to a banquet and being told what you are going to eat, in the same letter. You are better able to decide whether you want to go or not.

¶ We believe that, after reading over the following "menu," you will decide that you *are* going—to get the OCTOBER 3 ISSUE of "Brick and Clay Record" and read it first from cover to cover, before anyone else in the office or on the plant gets it.

¶ In the first place, this issue will mark the beginning of a new article by that inimitable ceramist, A. F. Greaves-Walker, which will have for its subject "*The Operation of a Producer-Gas-Fired Chamber Kiln.*"

¶ Space will also be given to a story on an architectural competition of unusual interest to the clay products manufacturer, which has been held under the direction of the Minnesota State Art Commission. The successful drawings covering $2,500 homes of hollow building tile will be shown and commented upon.

¶ The announcement of the winners in the students' ceramic essay contest conducted by "Brick and Clay Record" and which came to a conclusion on June 15 last, will be made. This announcement has been delayed because of unavoidable circumstances.

¶ The *second half* of Mr. Farnham's article which appears on page 503 of this issue under the subject "*What Scientific Management Accomplishes for the Employer and the Employe*" will be published in the OCTOBER 3 ISSUE. You will not want to miss this.

¶ The third pair of cost tables will also be given. They will cover "*Drying*" and "*Setting.*"

And now, confidentially, we want to whisper a secret to you. There are still better issues coming than those which have just passed. We have big plans afoot, and if you knew what we do about what is going into the next few issues, you would renew that subscription right away to make absolutely sure that you will not be without a single copy of "Brick and Clay Record."

At Work on One of the Brick Roads in Edgar County, Near Paris, Ill., Showing the First Application of Grout Filler in Advance of the Sweepers. The Filler is Being Removed With Scoop Shovels from Boxes

NEW TYPE *of* RURAL ROAD FEATURE *of* COMING CONVENTION

Inspection of "Monolithic" Pavements Near Paris, Ill., to Be of Absorbing Interest at Annual Gathering of Paving-brick Makers and Their Friends

WITHIN a little more than two weeks there will gather at the Hotel Deming, Terre Haute, Ind., the flower of one branch of the clayworking industry, namely, the manufacturers of vitrified paving-brick.

PAST CONVENTIONS EXCEEDINGLY PRACTICAL

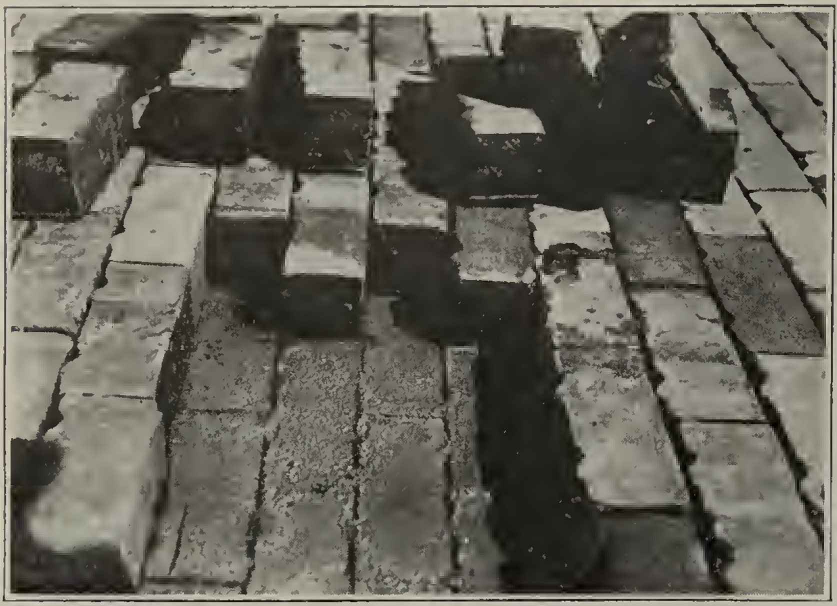
The past three annual meetings of the National Paving Brick Manufacturers' Association have been memorable occasions, distinguished by large attendances and practical programs. The convention held at Cleveland in 1913, when the famous brick streets of that city and the paved-with-brick roads of Cuyahoga county were inspected, at Buffalo, the following year, when the visitors were shown over New York state's fine brick highways which were thrown so violently into the limelight by ex-Governor Glynn's endorsement of the best of all paving materials, and the one last year, when manufacturers and engineers were given an opportunity to see for themselves the efficacy of the brick roads that radiate from Dayton—all have been productive of a greater interest and knowledge on the part of those who supervise and those who spend the money for road and street work in many of the nation's municipalities.

With such a brilliant line of ancestors it would certainly be an ignoble and traitorous performance for the coming convention at Terre Haute, Ind., and Paris, Ill., not to live up to the excellent reputation of its predecessors. That there is little danger of such an occurrence is easily seen from a perusal of the association's plans for the meeting which are interesting, to say the least.

RECENT RECRUIT WELCOMES "PAVERS"

There is one noteworthy feature of the coming gathering that is apt to be overlooked during the busy two days of October 5th and 6th. It is that while the "Buckeye" and "Empire" states have seemingly been the favorite stamping grounds for the "pavers" during the past few years, the convention this year will be held in a state that is somewhat of a stranger to gatherings of this class of manufacturers. For a long time Indiana has been an enemy to brick roads, but on March 11th, 1915, an amendment to a state law was approved permitting brick to come in on a free footing with all other paving materials. Since that time the "Hoosier" state has been a beehive of industry wherein promoters of brick highways have figured conspicuously. The 1916 convention will be the first to our knowledge that has been held in Indiana and for that reason, if none other, it should be largely attended, as sort of a victorious celebration in honor of the opening up of "Hoosierdom" to a more active promotion of dependable highways.

In spite of adverse legislation, however, there are brick streets in Indiana cities whose age is figured well over a score of years. Terre Haute, where headquarters for the convention will be maintained, has some pavements that were laid a quarter of a century ago. In fact, the first pavement laid on the streets of that city was brick. Since that time the traffic over these streets has been pulled with the greatest ease and at the least possible expense. There have been but very few repairs called for by wear and tear; none at all on the streets that were well constructed. The people have sensed the advantage of a like kind of road into the country.



"Close-Up" of an Edgar County Pavement With a Few of the Brick Removed. Note Condition of Green Mortar Base, Moisture Showing Light, Both on Bottoms of Brick Removed and Surface of Foundation

Terre Haute is building some brick-paved roads, but the smaller community of Paris, Ill., is building a still larger mileage, so in a comparative way it affords a great vision of better rural conditions.

TO TEACH IMPORTANCE OF CAREFUL CONSTRUCTION

The difference between a properly constructed street and one that is improperly constructed has not been fully appreciated in the past. The economical difference between the two is not understood as it should be, but it is believed that the influence that will go out from the conference that is to be held in Terre Haute and Paris on October 5th and 6th will bear with it the real meaning and worth that attaches to a careful compliance of all the details of construction that are necessary to make a road serve its best purpose.

An important purpose of the convention will be to show how a brick pavement can be built with the least possible cost and yet maintain all the essentials of worth.

ALL INTERESTED WILL BE MADE WELCOME

All persons connected in any way officially, or those deeply interested in the roads of this country will be made welcome at this conference. It is undertaken, no less in behalf of the brick industry, than in the sincere belief that the country itself is bound to be profited by such an opportunity.

Members of the American Society of Municipal Improvements on their way to the annual meeting of that society can spend October 6 at this conference and reach Newark the following week.

Engineers who are interested in the study and inquiry into the economy of "monolithic" construction will be pleased with this announcement. The money expenditure for roads is so great that interest as to their economic value is manifested everywhere by chambers of commerce and automobile clubs. This occasion will afford bodies of this character an opportunity to make a careful investigation and examination into the merits of this kind of road that cannot be gained in an ordinary inspection trip.

CRITICAL STUDY WILL CHARACTERIZE CONFERENCE

The conference will be characterized by a critical study of what may be seen in every phase of the construction and the finished pavement.

This, in view of the amazing amount of money to be expended in the next five years, will bring together a large number of engineers and others from all parts of the country. Many persons will attend also, who have no official connection with road building, but "who want to be shown." The place of meeting, being a central point of great road building interest, many road officials in Indiana, Ohio and Illinois and adjoining states will take advantage of this opportunity for definite information relating to their road problems that are soon to be up for decision.

All who expect to be present are requested to notify Will P. Blair, secretary, Cleveland, Ohio, to that effect. He will then furnish hotel accommodations, details of the program and other information.

"MONOLITHIC" PAVEMENTS WILL INTEREST MANY

While the brick-paved streets of Terre Haute will have much of interest for the visitors, the principal feature of the convention will be the inspection of the new "monolithic" pavements in and near Paris, Ill. An article describing these roads was published in the April 4, 1916, issue of "Brick and Clay Record" on page 624. It was stated in that article that these roads were built during the summer of 1915 and included highways upon which there is a large amount of traffic, much of which is from the farm to the city. One of the roads that was the last in this particular group to

Rolling and Inspecting Brick Laid on One of the Edgar County Roads. A Hand Roller is Used to Compress the Surface of the Pavement be paved, was originally designed as a part of the Dixie Highway and is the main telegraph road thru this part of the country. These highways, illustrations of which are shown herewith, were built under state aid and were approved by the Illinois State Highway Commission.

BRICK ROADS MINUS THE SAND CUSHION

In building the Edgar county roads (for that is the county in which Paris is located), the sand cushion was eliminated and a very good pavement secured. In constructing these "rigid" or "monolithic" brick pavements, the brick were laid upon a "green" concrete base or foundation and were almost immediately rolled and grouted.

For anyone who is not familiar with the details followed in the building of these roads, it will be a good investment to take the necessary time and refer back to this article, reading it carefully, so as to be prepared for a more intelligent inspection of the roads on October 6th.

Some conception may then be gained of the method of laying a "monolithic" brick pavement—the manner in which the brick are handled, the composition of the concrete base, the dry filler placed immediately above it and that of the grout. All of these points are covered in this article, and also the protecting of the pavement with a blanket of sand or earth until it is ready to receive heavy traffic. A report of several tests conducted at the University of Illinois is also concluded, which shows the strength of a pavement of this type.

Batch Mixture Preparing Concrete for Edgar County (Ill.) Roads

GOTHAM ASSAILED *with* LABOR TROUBLES

Brick manufacturers and dealers have had troubles aplenty this year. Laborers in manufacturing establishments have been "chesty" ever since the war started, as a result of the fancy wages paid by munitions manufacturers. In New York and in the Hudson and Raritan river districts, according to "Brick and Clay Record's" correspondent, the workmen employed on the brickyards have been "on the job," so to speak, along with the railroad trainmen, street car men, laundrymen, grocerymen, and many others who earn their bread by the sweat (?) of their brow and the exercise of their muscles, in their demands for higher wages. Unionism is certainly at the height of its glory, for success has invariably attended all of the numerous demands by the many classes of labor for several months past. Public opinion may not be any too strong in favor of some of the demands but, even so, the men seem to be getting what they ask for, and the great question is: "Will the cost of building go any higher?"

In some quarters it is felt that, should certain interests decree it, there could be a reaction to unionism that might counteract or stifle wage aspirations for some time to come, if not actually working for a decrease. In other words, should incessant demands for "more money" not take a halt, capital might do the "stop, look and listen" act, and the highest kind of wages would be of little good, if labor was not required. There is no intention, of course, so far as is known, of capital balking at the constant increases, but the danger lies in the fact that the public generally may cease to be cheerful about the continued drain thereby "jumping on" capital, and causing it to get mixed up with labor, resulting in times somewhat like those of 1893 and 1907.

In New York City the week ending September 9, the drivers of wagons carting brick from the barges went out on strike to have their union buttons recognized, and thus interrupted the delivery of material. In 1913 the same thing occurred, and the manufacturers and dealers, being provoked, suspended operations, causing a complete tie-up of building, and ultimately one—Sam Parks—went to Sing Sing, while several labor organizations were being subjugated.

There is a healthy lot of new building construction contemplated in the metropolitan territory, and there might be considerable more building under way than there now is but for the labor troubles that have cropped up at every turn. Optimism is good, and the optimistic spirit prevailing is marked, but there is no getting away from the fact that the attempted settlement of the railroad strike and the new street car troubles in Manhattan are things of no small moment in the eyes of those who furnish the money for building operations.

There are some builders who have recently determined to go ahead with operations, regardless of the high prices for materials and labor, but further complications between the barge crews and union drivers brought about a strike that is threatening an almost cessation of bricklaying operations in New York. Many dealers' yards are idle, and the brick market is almost at a standstill.

The fore part of September saw a good stiff demand for brick. North River common quotations (September 11) ran $7 @ $7.25; Raritan, $7.25 @ $7.75; second-hand commons, $4.50; red face-brick, rough or smooth, carlots, $21 @ $27. The quotations for buff brick were $21 @ $27; light colored for front, $25 @ $36, and special type quotations ran $36 @ $50.

⁂

Face-brick Cost Committee Completes Work

Now that the Cost Accounting Committee of the American Face Brick Association and the firm of accountant-engineers employed to assist in this work have finished their task of devising a system of cost keeping for face-brick factories, the work of installing same will be very vigorously prosecuted, if the plan is O. K.'d by the members. The report of this committee and that of the accountant-engineer is at the present time being printed and will be in the hands of the members of the association prior to the meeting at which the committee will make its report.

It is hoped that the base plan, agreed upon by the committee, will be adopted by the association and immediate steps taken to make the systems used by the members harmonize with it. The work of the committee on this feature has been guided by the desire to cause as little inconvenience as possible to those manufacturers who already are gathering all items of cost and are taking all such items into consideration when calculating complete costs. For such manufacturers, the following out of the association's program will mean that, when reporting various departmental costs, all manufacturers will include in each division the same elements—something which cannot be done at the present time.

For manufacturers who are not satisfied with their present cost system, the base plan is provided. The base plan is nothing more nor less than an elementary division of costs, each dvision of which may be divided and sub-divided ad liberatum.

There can be no doubt of the numerous benefits that will follow the adoption of the cost committee's program. A surprising betterment of competitive relations is bound to result and, being educated to the cost of manufacturing his product, the face-brick manufacturer will no longer tolerate the disastrous price cutting toxic to sap away the energy and profits of the industry.

Iowa's Model Farmhouse to Be of Burned Clay

As an addition to its many practical accomplishments in behalf of the farmer, Iowa State College is planning the erection of a model farmhouse on the agronomy farm, just south of the college grounds.

President R. A. Pearson, of the college, recently offered a prize of fifty dollars for the best suggestions, from any source, in the way of farmhouse construction. The best and most representative of these have been selected from the large number that were received, and are being embodied in plans for a model farmhouse, in which clay products will have a large part.

The walls and partitions in the house are all to be of burned clay, from the bottom of the footings to the roof. The furnace room is arranged under the kitchen, the kitchen floor being of hollow-tile and thoroly fireproof. This plan eliminates a very large portion of the fire risk, as the furnace is entirely enclosed within a fireproof room in the basement, the only other fire in the house being in the kitchen. The greatest danger of fire from this source will be to the floor and, of course, some of the walls above, which will be fireproof. In this case the word "fireproof" is used advisedly, as the structure will be proof against the quantity of fire that is at all likely to occur, either in the kitchen or in the furnace room.

The cost of this house will be approximately $4,000. A house of this value is naturally not quite as popular as, for instance, a $3,000 structure, but the purchasing power of the Iowa farmer is considerable. Furthermore, it is only the more progressive farmers that are figuring on fireproof homes and, of course, those who have made money in the past.

The house is being designed with seven rooms and a sleeping porch, thoroly modern in every respect. The building will measure twenty-nine by thirty-one feet in size, and will be two stories in height, with brick porch columns and floor. A part of the clay products have already been delivered to the site for use in the erection of this model farmhouse.

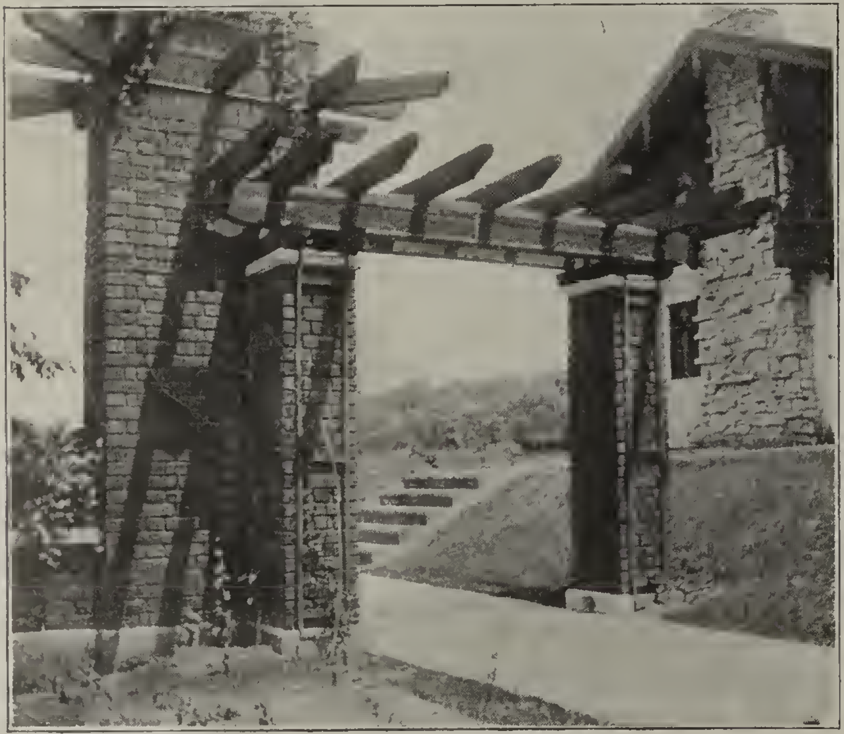
Clay Mining Holds Its Own in 1915

The war in Europe has caused a shortage in high-grade fire-clay, formerly imported from Germany, which has seriously affected the manufacture of crucibles, according to the United States Geological Survey. Efforts have been successful, however, in locating a domestic supply of clays suitable for use in many industries in Arkansas, Illinois, Missouri and Ohio.

Clay mining in 1915 was more prosperous, especially during the latter part of the year, than in 1914, the quantity of clay marketed being 2,362,954 short tons, valued at $3,971,941, an increase of 153,094 tons in quantity and $215,373 in value over 1914. Fire-clay is the most important variety of clay, 1,570,481 tons being reported for 1915, valued at $2,361,482, an increase of 161,014 tons and $214,205 over 1914. There were 28,031 tons of domestic kaolin, the purest form of clay, marketed in 1915, valued at $241,520, a small decrease from 1914.

The imports of clay decreased considerably in quantity and value, being the smallest in quantity since 1908.

WHAT *a* LITTLE BIT *of* BRICK CAN DO



A novel way of decorating what might otherwise be a barren and unattractive entrance to a home is shown in the accompanying illustration. The severe lines and neutral tone of the cement sidewalk have been relieved by the erection of a handsome brick gateway.

The Norse-like timbering that is set over the walk and which decorates the top of the larger brick pillar to the left, together with a bit of ivy that has been planted and trained to twine about the posts, gives an added touch of beauty.

Thus the commonplace has been turned into a show-place of the town. This brick gateway is to be seen in Dayton, Ohio, and has been productive of considerable favorable comment from passers-by.

This is just another use for brick which, if brought to the attention of property owners, might result in a large number of small, but profitable, sales.

An advertising medium is also secured thru the construction of these house and garden accessories that will demonstrate the beauty and adaptability of brick.

The VALUE *of a* CLAY DEPOSIT

Wherein Are Given Valuable Formulae, Together with an Explanation of Their Application, Filling a Long-felt Want to Every Clay Plant Owner

By A. J. Huac

THE VALUE of a deposit of clay has always been determined more or less by the law of supply and demand, or by the judgment of one or more parties. At times, when a plant has needed a particular piece of ground to keep the factory in operation, the seller has demanded a price, limited only by his judgment of the willingness and ability of the clayworker to pay.

The object of this article is to furnish plant owners a basis on which to figure the value of a clay deposit when buying or selling, or when figuring the value of their own holdings.

¶ It is Hardly Necessary to Dwell Upon the Importance of a Method for Determining the True Value of a Deposit of Clay.

¶ Most Manufacturers are Fully Aware of the Guesswork that Usually Attends This Operation and Will, Therefore, Welcome the Solution of the Problem, Which is Contained in This Article.

¶ While the Method for Arriving at the Worth of a Piece of Clay Land Has Been Made as Simple as Possible, It is Naturally a Little Complicated and Will Require Some Study in Following It Out.

¶ However, if You Do Not Quite Understand the Calculations Outlined, We will Be Glad to Figure Your Problem for You, If You Will Send Us the Necessary Information and Figures.

¶ *And It Will Not Cost You a Cent.*

The formulæ herein contained are algebraic. Since practically all of us have forgotten our algebra lessons, we will explain a formula which appears as No. 4 in the following paragraphs, and reads as follows:

$$R = \frac{API(Y+1)}{(2+I+IY)\ (1+IZ)} + \frac{APIZ}{(1+IZ)}$$

We first multiply the value of A by the value of P, and then by the value of I. We then add 1 to the value of Y and multiply by the previous result. This gives us the dividend of the first fraction.

We then add together the value 2, the value of I and the value of I multiplied by the value of Y. Then we add the value of I multiplied by the value Z to the value of 1, and multiply this by the first result. The product gives us the divisor of the first fraction.

The dividend of the second fraction is found by multiplying together the several values of A, P, I and Z.

The divisor of the second fraction is found by multiplying the value of I by the value of Z, and adding to the value of 1.

The other formulæ are worked out in the same way.

These formulæ for the value of the clay deposits are based on the fact that if every year there should be deposited in a sinking fund an amount equal to the value of C in each instance, multiplied by the tonnage taken out, the sinking fund at the end of the term represented by Y would be large enough to repay the total value represented by the formula and interest on the value of the clay deposit remaining unused each year. A little figuring in each case will prove the formulæ.

The formulæ for the value of the surface land are based on the same principle, except that the amount to be deposited in the sinking fund would be equal to the value of I, multiplied by the value of the surface land undisturbed by the clay digging operations. The value per acre of the land undisturbed is to be found by dividing the original value, as found by the formula, by the original number of acres.

All of the surface land values given herein are based on the assumption that when the clay is dug, the surface land is rendered unfit for any further use. In the very few cases where the surface would not be disturbed, or where the land would be of any later use, these values will not govern. These cases can be governed by adding to the present value of the surface land, as determined by ordinary methods, the value of the clay deposit as shown in this article.

All of the values shown herein are arrived at irrespective of the value or equipment of the plant using the clay, except the value of Y which must be determined by the amount to be used.

There are four basic conditions affecting the value of land containing a deposit of clay.

When the deposit of clay is being used, use the following formula:

$$(1) \qquad V = \frac{2\,ATC}{2+I+IY}$$

When the deposit of clay is not being used, and its use will not commence this year, use the following formula:

$$(2) \qquad W = \frac{2\,ATC}{(1+IZ)\ (2+I+IY)}$$

When the deposit of clay is being used and the surface has a value, use the following formula for the surface land value:

$$(3) \qquad X = \frac{(API)\ (Y+1)}{2+I+IY}$$

When the deposit of clay is not being used and its use will not commence this year, and the surface land has a value, use the following formula for the surface land value:

$$(4) \qquad R = \frac{API(Y+1)}{(2+I+IY)\ (1+IZ)} + \frac{APIZ}{(1+IZ)}$$

Evidently, when it is desired to find the total value of the land which has a surface value and contains the deposit, we must add together V and X or W and R, as the case may be.

In all of the formulæ shown here the various characters represent the following values or figures:

V represents present value of deposit, if now being used, or if its use will be started in the present year.

A represents number of acres which are underlaid with clay.

T represents average tonnage per acre, estimated from average depth of deposit.

C represents the advantageous price per ton. This is the price per ton that the clay deposit is worth. This must be figured as a decimal of a dollar.

I represents the interest due on invested capital. When this is six per cent. it must be entered as .06.

Y represents the number of years the deposit will last if used at a uniform rate, which in most cases must be estimated.

Z represents the number of years that it is thought the deposit will lay idle, or the number of years that will elapse before the continuous operation of clay digging will be started. When the term represented by Z is concluded, the term represented by Y begins.

W represents present value of clay deposit, if it is not now being used or if its use will not be started in the present year.

X equals the value of the surface land, when used for farming or other purpose on a piece of land which contains a deposit of clay which is being dug or will be this year. X represents the surface land value when V represents the clay deposit value.

R equals the value of surface land when used for farming or other purpose on a piece of land which contains a deposit of clay which is not being dug and which is not to be dug this year. R represents the surface land value when W represents the value of the clay deposit.

P represents the value of the surface land for farming or other use.

PRICE PER TON SHOULD BE FIGURED LOW

We must be very careful in figuring the value of C. Of course, high grade clays, and clays that are hard to duplicate under similar conditions are worth a good price, but ordinarily this value must be figured low. Under no conditions should any digging equipment be taken into consideration when figuring this item. The installation of a steam shovel reduces the cost of operation of a clay pit, but under very few conditions does it increase the value of a deposit of clay. Of course, if the machinery equipment of a deposit of clay is owned by the same firm or individual as the deposit itself, and the entire plant and land is leased, the equipment has a small effect on the value of the deposit.

If a competitor is digging clay by antiquated methods, it would seem that C ought to be figured at the difference in the cost of operation of the two pits. This is not true. The value of C is really the advantage in cost of operation, which one pit enjoys over another if their equipment is equal or the advantage which it would enjoy if their equipment were equal.

Possibly Jones has a pit with modern equipment and can dig clay for ten cents per ton cheaper than Smith, who has an old style outfit. If Smith would put in modern equipment he would be able to dig clay for the same amount as Jones. Evidently the value of C for the deposit operated by Jones would not be ten cents. His difference in cost of operation is a credit to his equipment and has no effect on the value of the deposit of clay.

The distance that clay must be hauled has a comparative effect on the value of a deposit. Of two deposits which are identical, the one at the plant and the other a half mile away, naturally the one at the plant is worth more. In figuring the value of C the difference in cost of transportation by equal equipment from the two pits must be taken into consideration. If Jones' pit is closer to his plant than is Smith's to his, so that with the most improved equipment for transportation at both pits, Jones could always transport his clay for five cents a ton less than Smith, it is evident that Jones can add five cents to any other monetary advantage he may have, to determine his value of C.

DRAINAGE AND STRIPPING AFFECT VALUE

Drainage conditions also have a comparative effect on the value of two deposits of clay, because they directly affect the cost of operation. Depth of stripping must be considered for the same reason.

A clayworker can easily find the value of C for his condition by answering the following question: How much more per ton am I willing to pay for this piece of land containing a deposit of clay than for another?

Often owners think their land valuable because it is underlaid with clay. Cost of operation makes it useless. This method will determine that it has no value. We would suggest a minimum value of one cent for C, if a pit is actually in operation. Even tho the cost of operation is greater than that of another competitive pit, the assurance and satisfaction of depending on a proper supply of clay for the use of the plant ought to be worth that much.

If one firm has a lease on a royalty of 2½ cents a ton and since that lease was signed the price on surrounding land has increased to five cents per ton, the value of C for the owner of the lease is 2½ cents, providing other conditions are equal.

All natural conditions, but very few artificial conditions, have a bearing on the value of C.

The owner of a piece of land containing a deposit of clay which he has leased will figure his royalty prices as the value of C for his holdings.

AN EXAMPLE OF HOW IT WORKS OUT

Using formula No. 1 suppose a plant owns forty acres of clay land. Suppose that it averages seven and one-half feet in thickness and that we figure one hundred and twenty pounds per cubic foot in place. An acre contains 43,560 square feet. We have, therefore, 19,602 tons per acre. Suppose C equals two cents per ton. Suppose that the plant would make 20,000 brick per day for 300 days and that each brick would weigh 6 pounds when it is burnt and seven pounds when dried. Evidently the dried weight is the weight of the clay used. The plant would use 21,000 tons per year. We will use six per cent. as value of I. The clay will last 37.3 years.

$$\text{Therefore } V = \frac{2\times40\times19{,}602\times.02}{2+.06+(.06\times37.3)} = \frac{31{,}363.2}{4.298} = \$7{,}297.16,$$

or $182.43 per acre.

Suppose that adjoining this forty acres there was another tract of forty acres of identical clay. What can the firm afford to pay for this piece? We will use formula (2) and Z will equal 37.3, since we cannot use this clay until the first piece is worked up.

$$W = \frac{2\times40\times19{,}602\times.02}{(1+2.238)\ (2+.06+2.238)} = \frac{31{,}363.2}{13.916924} = \$2{,}253.60, \text{ or}$$

$56.34 per acre.

Suppose that the plant buys this second piece for $2,253.60. Evidently the total clay supply would be worth $7,297.16+ $2,253.60, or $9,550.76. This equals $119.39 per acre.

To check our figures suppose we consider the eighty acres as belonging to one piece. We will then use formula (1)

$$V = \frac{2\times80\times19{,}602\times.02}{2+.06+(.06\times74.6)} = \frac{62{,}726.4}{6.536} = \$9{,}597.06, \text{ or } \$119.96$$

per acre.

There appears a little discrepancy due to figuring the interest involved, but as it amounts to only 57 cents per acre or less than ½ of one per cent., we can easily be satisfied.

Formulæ Nos. 1 and 2 can be used just the same for leased land as for land that is owned outright. In case of leased land, the lessor can use the royalty per ton which he receives as the value of C, and the lessee can figure his value of C according to conditions. If the royalty is lower than an adjoining piece the lessee can figure accordingly when establishing his value of C. Naturally, the lessor's value of C and the lessee's value of C when added together ought to give the value of C that would be used if the owner of the land were also the operator.

We must still consider the surface land value.

FIGURING THE SURFACE LAND VALUE

Take the first forty acres of land on which we figured the value of the clay deposit. There is one new value to determine, namely P. Suppose that if this land were undisturbed for clay digging, P would have a value of \$100. Then formula No. 3 will be

$$X = \frac{(40\times100\times.06)\ (37.3+1)}{2+.06+(.06\times37.3)} = \frac{9,192}{4.298} = \$2,138.67, \text{ or } \$53.47$$

per acre.

Take the second forty acres of land from which the clay will not be dug until all of the clay from the first forty is used. We will use formula No. 4:

$$R = \frac{(40\times100\times.06)\ (37.3+1)}{[2+.06+(.06\times37.3)]\ [1+(.06\times37.3)]} +$$

$$\frac{40\times100\times(.06\times37.3)}{1+(.06\times37.3)} = \frac{9,192}{4.298\times3.238} + \frac{8.952}{3.238} =$$

$$\frac{9,192}{13,916924} + \$2,764.67 = \$660.49 + \$2,764.67 =$$

$$\$3,425.16, \text{ or } \$85.63 \text{ per acre.}$$

Adding together the two results the total value of the eighty acres is found to be \$5,563.83 or \$69.55 per acre.

Again, to check our formulæ suppose after the plant has bought the second tract of land, we figure the value on the basis of formula No. 3:

$$X = \frac{(80\times100\times.06)\ (74.6+1)}{2+.06+(.06\times74.6)} = \frac{36,288}{6.536} = \$5,552.02, \text{ or}$$

\$69.40 per acre.

A discrepancy of \$11.81, or 15 cents per acre, appears the same as when figuring the other formulæ. This is due to the different way of figuring the interest, and, as it amounts to less than one-quarter of one per cent., it can easily be disregarded.

The conditions under which clay is owned and used are too varied to enumerate here. We have, however, shown how to determine the various values separately and each clay-worker can combine the values to suit his conditions.

In figuring surface land values, possibly we should not figure any income from the surface the first year but, as it does not amount to a great deal, we have done so. Otherwise, our formulæ would be more complicated.

PROVING OUT THE FORMULAE

To show how our formulæ will prove out, take the first instance, where it was found that V for a certain forty acres of clay land equaled \$7,297.16. Each yearly depreciation will be \$197.63. The interest on invested capital the first year will be \$437.83. The interest the second year will be \$426.09, due to the depreciation, and the third year it will be \$414.35. The interest for the last three-tenths of a year will be \$3.52. If we add together all of these interest items, we will find

the total to be	\$8,384.44
Add the total depreciation	7,297.16
Total	\$15,681.60

This is the amount that must be taken in, to prove our formula.

If we multiply the tonnage per acre by the number of acres by the value of C, we will arrive at the total income for the entire period. This will give us \$15,681.60, which is the same total as the interest and depreciation added together.

This proves our statement made above that, if the yearly income were placed in a sinking fund, at the end of the term, the sinking fund would be large enough to repay the original investment and interest on the capital invested each year.

The other formulæ can be proven in the same way by actual figures.

DETROIT CLAIMS MEMBERSHIP IN "BIG THREE"

Detroit this year is using upward of 450,000,000 brick in construction work, says the "Free Press." Of these 365,000,000 are produced in the Detroit yards, about 50,000,000 are face-brick brought from Ohio and Pennsylvania and 40,000,000 are the common-brick manufactured in Chicago and other Michigan points.

Until recently Detroit ranked third in the production of common-brick, the Hudson river and Chicago districts being in the lead. Now, however, with the large increases that have been made in the capacities of all the Detroit plants, it is questionable if there is much difference in the annual production of these three places.

The clay deposits in Wayne county and the western part of the city are remarkable because of the small area in which they exist in paying quantities. A circle of two miles in diameter will more than cover it. This district has been worked since the first brick was made in Detroit, countless millions have been burned and there is enough clay in sight to manufacture 400,000,000 annually for the next half century.

The growth of Detroit is reflected in the brick industry. In 1913 the production was 200,000,000, in each of the two years following it was about 300,000,000 and this year it will be 365,000,000 or 1,000,000 brick a day. The number of men employed in the industry has grown to 1,400 and the delivery of the product requires 200 teams. Experiments are now being made with six motor trucks and trailers and, if these are a success, the distribution can be made in much less time.

The manufacture of brick is one of the oldest of industries. In the early days of Detroit's history the exceptional clay of Springwells was discovered and one brick yard followed another until now, there is not a foot of the land for sale in this vicinity. The operations in the field are conducted by six big companies and from twelve to fifteen smaller ones.

Plans called for even a greater output than 1,000,000 a day this year, but two strikes and the delay in receiving new equipment interfered. Much new machinery has been installed this year and some that was due in April did not arrive until three months later.

Oil burning has revolutionized brickmaking in this city and it plays a leading part in the cost of production. When the first oil burner was installed the fuel cost eighty cents per one hundred gallons. Since then it has doubled twice and more has been added to that.

Labor has gone up very much, so that the cost of producing brick is much greater than it was a few years ago. While the price has had to be advanced to meet this added cost, the brick of today is twenty-one per cent. larger in size than it was ten years ago.

Such has been the demand for the common building brick this year that the contractors will use about 40,000,000 of the light colored variety from Chicago, Benton Harbor and other Michigan plants for interior work alone.

BIG MARKET FOR FACE BRICK

Detroit has grown to be important for the fine qualities of the face-brick which it uses. These are produced in Ohio and Pennsylvania, the division of the patronage being about equal, as far as Detroit is concerned.

There are many establishments in the city handling face-brick, and the opinion of some of the most extensive dealers is that from 40,000,000 to 50,000,000 will be shipped to that point during the present year.

The effect that can be produced by the use of these brick, says the local newspaper, is pleasing to the home and office builder. The colorings are numerous. There are combinations which must suit anybody, and they are everlasting. Detroit calls for a wide variety of colors and surfaces, and the dealers have great stocks to meet this demand.

ECONOMY IN THE LONG RUN

Time was when brick buildings were regarded as an extravagance, for then lumber was cheap, and the brick of the day was literally sun-dried clay, and very absorbent. Damp walls were the rule, not the exception, the brick had to be covered with expensive paint to serve the purpose intended. The use of the vitrified brick makes paint unnecessary, in fact, it would spoil the beautiful colors of nature.

There are many points in favor of brick as a building material. In the first place there is the beauty to consider, for with no other material can such an effect be obtained. The brick is impenetrable, the inside of the house never is damp, and the freshness of the coloring endures the hardships of winter and summer alike. There is no deterioration, the brick will last forever, for its making calls for the highest degree of skill and care.

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"Hawkeye" Clayworkers Active at State Fair

Again the "punch" of the Permanent Building Society, which is made up for the most part of progressive Iowa clay products manufacturers, has made a lasting impression in the minds of those who attended the Iowa State Fair, held recently at Des Moines.

Under the guidance of its secretary, Matt King, commonly known as the father of the Iowa silo, the big "nut-cracker" was, figuratively speaking, taken down from the shelf, dusted and again put to work demonstrating the tremendous pressure and severe shocks which a hollow-tile is capable of withstanding. The "nut-cracker" needs but little introduction here for it has already won fame for the snappy demonstration of the strength of hollow-tile that it has afforded at public gatherings, especially where the farmer is present.

However, to enlighten those who have not as yet heard of its performances, this device is constructed by fastening two 15 in., 24 lb. "I" beams, each twenty-five feet long, in much the same manner as the ordinary domestic nut-cracker is made. About two and one-half feet from the joined ends is provided a place for the "nut," or hollow-tile. An automobile carrying three or four men runs up a fulcrum platform, so placed that when the automobile passes over center, the platform, carrying its load of more than ten tons, crashes down upon the free end of the upper beam. This operation, repeated in quick succession several times, is not unlike the action of a huge pile-driver trying to drive a pile thru a bed of rock, but as yet, the "nut-cracker" has not succeeded in breaking down the walls of the tile. The attractiveness of the demonstration is such that it will draw the most disinterested farmer away from the noisest steam caliope that ever blew off at any state fair, and does so in a manner that leaves an indelible impression upon the minds of those men whose business the society is seeking, of the remarkable strength of a well-burned hollow clay tile.

Supplementing the exhibit of the society, was at least one conducted by an individual manufacturer—that of the Adel Clay Products Company. Consisting of a silo built of the company's block, a corn-crib showing a patent tile, an office building of hollow-tile and other hollow-tile structures, it gave the farmer an opportunity of seeing in use, and in buildings such as he has need for on his farm, the product that he had just seen weather such an unusual test without developing as much as a hair-crack. The exhibit was taken care of by H. R. Straight who, with several assistants, furnished information regarding the economy and merits of hollow-tile construction for farm buildings and residences. Pamphlets, containing details of construction of hollow-tile buildings and plans for same, were distributed to the visitors. The company's exhibit was very favorably located, being just inside the entrance to the fair grounds.

War Helps Ceramic Industries

"Due to the war, which has placed the ceramic industries of this country above those of any other country in the world, there is going to be a greater demand for trained ceramic engineers during the next few years than the colleges can fill," says Homer F. Staley, head of the ceramic engineering department of Iowa State College, Ames.

He points out that ninety per cent. of the home demand for art pottery is being supplied by this country, compared to eighty-two per cent. two years ago. Over $40,000,000 worth of pottery is being manufactured in this country annually. Enormous shipments of enameled iron ware are being made to foreign countries, principally Argentine, which were formerly supplied by Germany.

"We have learned to make watch glasses, optical and chemical glass and china heads for dolls, all of which Germany supplied before the war," says Mr. Staley.

"Iowa can manufacture clay products," he says. "She must come to a state of increased manufacturing activity in the future, if she hopes to maintain ultimate supremacy and the manufacture of clay products is one of the most possible industries for her to develop. She has the natural deposits for crude clay products and art pottery, and is as close to the deposits of clay suitable for the manufacture of white china as any other state where such are manufactured."

⁂

The Wilkes-Barre (Pa.) Railway Company, in consideration of the privileges granted by various municipalities to transport passengers upon their streets, has spent for improving, paving and curbing streets, partly occupied by tracks leased by the company, $777,895.57, which does not include a maintenance expense of $190,694.44. The material used for paving was brick and was laid in a large number of boroughs, townships and cities in the Keystone state.

WHAT SCIENTIFIC MANAGEMENT ACCOMPLISHES *for the* EMPLOYER *and the* EMPLOYE

The Second of a Series of Articles, of Which the Following is the First Part. The Second Half Will Appear in the October 3rd Issue

By Dwight T. Farnham

ONLY A FEW YEARS AGO any number of innovations in the management of a factory or business were branded as "hifalutin' ideas" or as rank idealism which every one now regards as good business. The "Safety First" movement is even now looked upon in some sections of the country as a charitable idea worked out by "a lot of fellers with more money than sense." It takes a damage suit for eighteen or twenty thousand dollars, decided by a warm-hearted jury with little use for corporations, to convince a certain type of executive who is the possessor of what he calls "good old fashioned common sense" that safety shaft collars, guarded belts. lighted stairways and an occasional hand rail placed around high speed machines are good investments.

In the same way a great many men look with deep distrust upon any plan whatsoever, which has about it the slightest flavor of philanthropy. This type regards the working man as a sort of ravenous beast, having no traits in common with ordinary white folks and is firmly convinced that if you give the laborer an inch he will take an ell. Consequently, he believes in conceding nothing to his employes until he is absolutely forced to it. He forgets that people in general are quite likely to act up to the general opinion we have of them. If everyone treats a man as if he were a beast, before long he will act like a beast. This type of employer, unfortunately for him, is sooner or later convinced ot the error of his ways by what is now generally known as "collective bargaining"—which in extreme cases is applied with a club, after dark, or by means of a general conflagration, in which the whole works go up in flames.

RESISTANCE TO INNOVATION

The third type isn't convinced until he's dead. Not long ago, the writer was waiting for a man who is at the head of the Executive Club of one of our largest cities—a writer of note upon industrial and economic questions—to finish some dictation. There was one letter of several pages which he answered with a polite note thanking the gentleman for his interest in an article recently published and telling him how much he appreciated frank criticism. When he had finished he turned to me and said:

"There is no use arguing with that type of knocker—they don't understand English because they haven't anything to understand with. If you come back at them you simply hurt their feelings without penetrating their understandings, so I just thank 'em and say goodbye."

It is among these types that you find the owner or the executive who always suspects Scientific Management because it does something for the employe—because it seems to offer a greater interest in work which is drudgery, and to increase the laborers' pay. He believes that any system which would induce Ida Tarbell to stand up before the Federal Commission on Industrial Relations and to state that such a scheme offered a solution of the country wide industrial unrest, must be wrong on its face, *because the laboring man—according to his creed—deserves all the unrest it is possible to supply him with.*

On January 20, 1915, Miss Tarbell said in part:

"There is an increasing desire on the part of the employers of America to give the laboring man full justice and the idea is steadily at work.

"It is coming out fundamentally in what is called the Science of Management. This breaks away entirely from the old ideas. It means better earnings, shorter hours and, most important of all, the development of the man as a worker.

"One reason why Scientific Management is so important is that it requires co-operation and collective action to make it really successful."

The account continues: "Miss Tarbell said she had seen the system at work in half a dozen big factories and laid stress upon its power to push men out of their ruts. She answered the common objection to Scientific Management as to its being a dangerous weapon in the hands of unscrupulous employes by stating that in such hands it would not work at all.

"Miss Tarbell also advocated one-third of the extra profit earned thru the introduction of Scientific Management going to the managers, one-third to labor and one-third to the shop."

NECESSITY FOR ABSOLUTE FAIRNESS

It is better that the type of factory owner cited in the opening paragraphs of this article should not be able to comprehend Scientific Management. Occasionally, a sort of hybrid exists who can see opportunities for gain thru the installation of the system, but who is not broad enough to comprehend that the fair deal, necessarily, in order to be a fair deal, must secure something for the employe as well as for the employer.

One such instance came to the writer's attention about a year ago. A thoroly capable engineer had set standards of production on all the operations in a furniture factory employing about a hundred and fifty men. By the use of the stop-watch and the analytical time study he had figured out just how long it should take each man working at his best to perform his task. Incidentally, in this particular instance, it would have meant that if each man had worked as prescribed—without physical injury to any employe—the production of the factory would have been increased one-third, and the payroll cost of each article reduced one-third. To induce the men to do their work, according to the methods prescribed, the engineer proposed a reward which would pay them in proportion to what they accomplished.

The answer of the owner of the company was characteristic:

"You say they ought to do the work in this time and you want to pay 'em for doing what they ought to do? Well, you can just make 'em come up to standard without any bonus!"

The engineer, as soon as he found his man couldn't be moved by explanation or argument, resigned. Various executives who were ordered to accomplish the impossible also resigned and at last reports the concern was going on the rocks about as fast as industrial chaos from receiving shed to shipping room could take it.

A Piece-rate Crew "At Work." This Picture Was Taken Before the Drawing of Kilns at This Particular Plant Had Been Standardized and the Men Are Not on a Bonus. This Crew is Not Over Forty Per Cent. Efficient. Note the Listless Attitude of the Men

EMPLOYER MUST BE PREPARED TO DO HIS PART

It may seem a long way from a discussion of the employer's attitude toward labor or of what happened in a furniture factory to the clay business, but it is absolutely essential that the reader understand that it is quite as necessary that the factory owner or the chief executive be of the right sort and in the right frame of mind, as it is that the engineer be competent.

The late Frederick W. Taylor said to the writer only a few weeks before his death:

"The attitude of mind is essential. The factory owner must want Scientific Management badly—badly enough to do as he is told. He must have faith enough to take him thru the inevitable periods of discouragement. The type who foresees all the difficulties which might occur, and who is everlastingly fearful, is not ready for Scientific Management. The man who would secure its benefits must have both courage and faith."

He then went on to cite a number of instances—naming some of the best known corporations in the country in which the directors had wanted the system installed, but whose call he and his associates had refused because of the type of executive in charge.

A four-year investigation of the success of Scientific Management in one hundred and forty-five factories by C. Bertrand Thompson, consulting engineer and lecturer at Harvard University, disclosed the fact that the larger part of the failures—in fact, all but one—were due to:

I. The Personality of the Management.

II. The Personality of the Consulting Engineer.

In the first case the failures were due to:

A. The managements' rushing in with great enthusiasm and then vacillating between strong support and doubt and distrust—a very weak-kneed course.

B. Dissension in Management—foremen really in control, etc.

C. Absentee Control.

D. Lawyers in Charge.

E. Sheer Incompetency of Management.

F. Financial Inability to Carry it Thru.

G. Panics—Fall in Output.

H. Weak Selling Organization.

The longer most of us live, the more firmly we come to believe that it is very seldom that the Fates grant us something for nothing. This law runs even thru science, as countless inventors who have spent their lives "inventing" perpetual motion machines have discovered. The rule is just as true in the case of industrial problems. The benefits, financial and otherwise, to be obtained from the introduction of Scientific Management into a factory are very great, but the owner who would obtain them must be prepared at the outset to go thru periods of doubt and discouragement and often to incur a certain amount of initial expense while the bread is being cast upon the waters. Anyone who represents the thing in a different light is borrowing a leaf from the book of the mining stock promoter and the gentleman who has a gold brick to dispose of at a sacrifice.

THE NEED FOR MORE EFFICIENT MANAGEMENT

Recently the need for more efficient management thruout the country has been brought to light most forcibly. The Federal Trade Commission, upon investigation, has found that outside of banking, railroad and public utility corporations, there are about 250,000 business corporations in the country. Of these over 100,000 report no net income whatsoever. Another 90,000 make less than $5,000 a year each, leaving 60,000—or less than one-fourth of the business corporations of the United States—which earn over $5,000 per year, and so may be termed successful.

Of these successful corporations *only about one-half charged off depreciation.* In other words, if they had kept their books fairly and honestly, it is a question how many of them would have to come within the successful twenty-five per cent. Edward N. Hurley, then vice-chairman of the commission, stated that "Failure to provide for depreciation is one of the causes that has a great influence on the business death rate."

The same gentleman further stated:

"If you compare our figures which show that only ten per cent. of our manufacturers and merchants know what it costs to manufacture and sell their products you have the answer as to why Germany has been so successful in developing such a high standard of efficiency in manufacturing and distributing her products, not only in Germany, but in the markets of the world."

The clay business is an average American industry.

Its leaders are as fine men and as progressive as the leaders of any business in the country, and its mossbacks carry more moss to the square inch of back than any other manufacturers in the country—*and are proud of it.* The writer at various times managed a number of clay plants of various sorts for several different companies, during which time he visited and studied conditions at over a hundred clay factories, *and the money that is being wasted in some quarters is simply appalling.*

One branch of the industry was investigated by the United States Department of Commerce in 1914-1915. The department's findings, summarized briefly, are as follows:

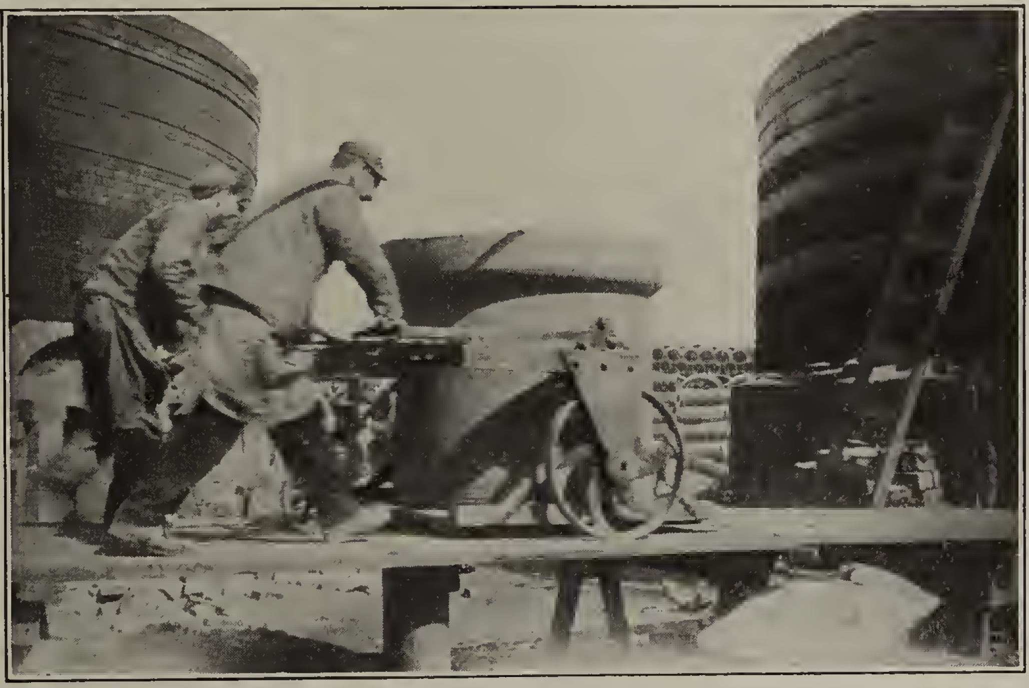
1. The manufacturers are without adequate knowledge of the costs of production in their own industry.

2. Extreme variations prevail in different factories in the cost of production, the difference in the cost of various specific operations between the minimum and maximum being as follows:

Labor Costs	35 per cent.
Material Costs	46 per cent.
Kiln Fuel	66 per cent.
General Expense	294 per cent.
Fixed Charges	551 per cent.

3. Many factories are badly arranged and poorly equipped so that repeated rehandling of materials and products is necessary and economical routing extremely difficult.

4. There is a distinct need for more scientific methods of production.



This Crew is on a Bonus and Their Work Has Been Standardized. No Listlessness Here. These Men Have Been Set Up in Business for Themselves and Are Enjoying the Work Thoroly

NOT A MATTER OF NEW EQUIPMENT

There is no other point which the writer wishes to make clear before discussing in greater detail the application of Scientific Management to clayworking. A great many men have the idea that letting an industrial engineer loose in a plant means spending from ten to fifty thousand dollars for new equipment. This is not the case at all. Anyone can cut costs by spending a lot of money for high-priced mechanical handling devices and more up-to-date machines. The competent engineer recommends new equipment only as a last resort. He may at various times present figures showing that a new machine would pay for itself in three, six or twelve months, but his endeavor always is to make the machinery on hand do the work.

It has been the experience of industrial engineers, generally, that factories in this country are over-equipped and under-supervised—*so beware of the man who begins by recommending an immediate outlay for equipment.* Efficiency doesn't mean a lot of new machinery. *It means first of all getting one hundred per cent. use out of everything you have.*

HOW ECONOMIES ARE EFFECTED

We have taken up considerable space describing the attitude of mind in which it is necessary to approach Scientific Management, and have devoted some time to explaining what Scientific Management is not. The thing that saves the money is perhaps best explained by an illustration.

During the past week the writer spent a couple of hours at a large sewer-pipe plant which has been operated under Scientific Management for about a year. It was a hot day and the official government thermometer was ninety-seven degrees in the shade so that it must have been at least one hundred and fourteen degrees around the kilns. In spite of this, the spirit of the kiln forman around the kiln which was being salted was the spirit of our grandfathers at a "barn raising" or of our fathers at a "husking bee." While the sweat was running profusely, there was none of that hang-dog, "wage slave" attitude we hear so much about from the street corner orators. One of the men had brought over a jug of lemonade and between salts the trial pieces were discussed in the shade of a nearby kiln with the same spirit with which the equal partners in a business might discuss a new product—and this in spite of the fact that one of the firemen could hardly make himself understood on account of his broken English. A new method of salting was being tried out which meant more work for the firemen, but were they sullen about it? *Certainly not!* They were all partners in the same business. Every fireman on the job knew that if the new scheme succeeded the quality of the pipe would be increased—and that his wages would be increased—and that his wages would increase in exact proportion—and was doing his level best to make the experiment a success. And there was more than the money. The system had been installed long enough so that it was "the style" among the men at that factory to take an interest in the work, instead of growling and shirking.

When the salt was finished the men sat down in the presence of the superintendent with all the freedom they would have shown with each other in their own homes. They had the *right* to do so. They were not serfs expected to cringe before their superiors, but independent workers—each one set up in business for himself by the bonus system. Every man was as nearly as possible his own boss, working for the common end—the greatest quantity of pipe of the best quality, produced with the least coal and with the least labor.

The more each man saved the company, the more money he got himself. He knew how his friends, who were finishing other kilns, were doing and he was striving to beat them at the game. A spirit of friendly rivalry brought added interest to a hard day's work and with each pay day came a substantial reminder of what his conscientiousness had meant to the company.

ON THE OTHER HAND—

From this plant I went to the factory of another company—a concern known thruout a dozen states as a business success. A truck holding three hundred brick was being loaded from a kiln. There were four men at work beside the man who came for the truck. As soon as these men had sized me up as a salesman or something equally harmless, as far as they were concerned, they fell back into their regular stride again. The system was this:

As long as the truckman—who seemed to be a sort of foreman—was in sight all four men kept moving. Each move was deliberate as possible, it is true, but still the motion was fairly continuous.

However, as soon as the truck was loaded and removed by the trucker, work stopped. Two of the men frankly came outside of the kiln, sat down and rolled cigarettes. On one occasion when one of the men lingered in the kiln the other cigarette smoker cursed him freely for working on a hot day. As soon as they could hear the trucker returning, they threw away their cigarettes, went back into the kiln and began loading the empty truck which had been left there. Meantime the trucker had to wait until the truck was filled. The men were obviously unhappy. Dodging the boss had ceased to be a novelty, they were plainly bored to death and were wishing for the dinner hour—or anything to add interest to their existance.

This crew was not over twenty-five per cent. efficient as compared with the first one described. The labor was costing the company four times as much as in the first case. The men were dissatisfied and were engaged in systematic soldiering, furtive and underhand, of a sort which every hour it was practiced got them more and more into the "wage slave" attitude of mind, instead of making them honest, self-respecting and proud of their work.

These men were not in the least to blame. You and I would do the same thing in their circumstances. They were paid for time served—not for work done, either quantity or quality. Piece work might have helped some, but when rates are set in the ordinary way, it is only a matter of time before systematic soldiering is just as prevalent in piece work gangs as where day work is in vogue.

DO YOU REALLY KNOW WHAT YOUR MEN ARE DOING?

You may say that men working in your factory would have been fired who loafed that way. Perhaps so—theoretically. Remember, however, that a brick plant making a hundred thousand brick a day usually has one superintendent and two or three foremen who are not working foremen, or gang leaders. Suppose there are four such men altogether whose sympathies are not with the men, as must be the case where the leader actually works with his crew. In such a factory there are usually at least a hundred and sixty men. That makes forty men to each foreman so that each one can devote between thirteen and fourteen minutes a day to each of his men. *What will each man do the other eight hours and forty-six minutes while the boss is away?* While each foreman may not, strictly speaking, have thirty-nine men loading all the time, nevertheless, when it comes to a trial of strength to decide whether that foreman can drive every one of his forty men at one hundred per cent. efficiency every minute of the day or whether each man will loaf a certain portion of the day, the chances are at least ten to one that the foreman will lose, since he is not likely to have more than a quarter of his men under observation at any one time. The writer's experience has lead him to bet on the men.

WHAT THE ILLUSTRATIONS REPRESENT

The first of the accompanying illustrations shows a typical piece work crew "at work." This picture was taken before the drawing had been standardized. The man at the left is removing a twenty-inch pipe from the kiln while the man on his right is calmly waiting to roll it away. This second man is not at all impatient. The man waiting at his right looks still more bored, while the man at the extreme right is frankly whiling away his time by whistling. Out of the five men in the picture, two men are at work, so that at the moment the picture was taken the crew was working forty per cent. efficient.

The question, of course, at once arises as to why—since this crew was on piece work—all of the men were not doing their best to earn as much as possible. To the industrial engineer the answer is obvious. In the first place, the piece rates had not been established by means of the analytical time study. In consequence, the exact number of men which would do the work to the best advantage had not been determined. In the second place, the proper sort of equipment had not been provided. In the third place, the men knew that if they let themselves out they could make such large wages that their rate would be cut in which case they would have to work harder to earn the same money. In the fourth place, they had not been taught to use themselves and their equipment to the best advantage.

MEN THAT ENJOY THEIR WORK

The second picture shows part of the setting crew at work. Needless to say these men are on bonus. You can almost see them hustle—*and they are enjoying every minute of it.* They know that the more quickly they do the work the more money they will make and they are "going after it" for all they are worth. The equipment they are using has been standardized. Everything is in smooth running order and experts have figured out the most advantageous way of doing the work, and have taught each individual workman just how to do the most work with the least wear and tear on himself. The photograph speaks for itself. The men haven't even time to watch the photographer.

The two pictures tell the whole story. Which company will have the lowest cost of production and make the most money—the one whose men are soldiering, who do not care how much ware they spoil, who are dissatisfied with their work, who regard themselves as "wage slaves" and strike at the first opportunity (often just for the excitement of the thing), or the company which has taken the trouble to standardize its equipment, to scientificially plan the work and to split with their men the fruits of more efficient operation by means of some system of bonus, with rewards in exact proportion to accomplishment?

* * *

News Notes from the "Keystone" State

J. R. Ryan of the Rick-Ryan Brick Company, with main offices in Reading, Pa., reports a common-brick famine in Harrisburg, Pa., where the company's plant is located. Mr. Ryan has the following large orders for common-brick to fill: 750,000 for the City Star Laundry Company's four-story building, 600,000 for the Saint Mary's Catholic church being erected at Steelton, 1,000,000 for Irvin-Leighton, contractors for the Midland Steel Company, and about 500,000 for a number of houses being constructed in Harrisburg. He also reports a big volume of business in face-brick.

The Altoona (Pa.) Brick Company has recently purchased a steam shovel to expedite the gathering of the clay from its pit.

REPLACING TEN TEAMS *with a* TRUCK *and a* TRAILER

Remarkable Performance of a Washington (D. C.) Brickmaker Who Uses Motor-driven Equipment to Cut Delivery Costs

"THE USE OF MOTOR TRUCKS facilitates deliveries, satisfies customers, and our outfit of three trucks and as many trailers, is doing the work of from eight to twelve teams each, which we figure cuts our hauling cost in two," is the way in which John H. Miller, manager of the Washington (D. C.) Brick and Terra Cotta Company, expresses his opinion of this method of laying down his ware on the job.

This concern, which put one truck in service in September, 1915, and has since added two others, reports that many of its customers do not want their deliveries made any more with team, but insist on having them made with the trucks.

TRAILERS ADD TO SUCCESS OF TRUCKS

Perhaps the most interesting feature of the company's motor-driven delivery equipment is that trailers are freely used. Mr. Miller thinks that this plan has solved the motor truck problem, insofar as he is concerned, for his enthusiasm was greatly increased upon the addition of the first trailer, which made a large increase in the truck's hauling capacity. With the aid of this addition he firmly believes that it is a very effective means of lowering delivery costs. Besides its three trucks and trailers, the company often hires trucks when it is crowded with orders, which is proof positive of the high estimate placed on this equipment by the company's manager. While we do not wish to pose as a prophet, it is being whispered about that Mr. Miller is contemplating the purchase of additional trucks.

In September, 1915, as above stated, the Washington Brick and Terra Cotta Company put into service a three and one-half ton truck. This was operated for some time when Mr. Miller had the idea of using a trailer presented to him. He purchased one, with a capacity of two and one-half tons, running the cost of his "train" up to $3,768, but giving him unusually large delivery facilities, considering the amount invested. The first car cost $3,000 for the chassis alone, while the price of the trailer was $768. Bodies for both the truck and the trailer were built by the company at its yard.

When the trailer was added—the capacity of the truck being almost doubled—things looked brighter to the management for bigger savings from its new departure. Then in February, 1916, a five ton truck was purchased, together with a five ton trailer. This was followed by the acquisition of another truck and trailer of the same capacity, completing the "fleet" of the Washington concern to date.

LARGE TRUCKS HAVE DOUBLE THE CAPACITY OF TEAMS

Concerning the capacity of these trucks, the first one purchased—holding three and one-half tons—with the two

Owing to an Ordinance in Washington, Which Prohibits the Dumping of Brick, it is Necessary to Pile the Ware Neatly at the Site of the Building. In Spite of the Fact That This Requires Three More Men Than if the Brick Were Dumped, the Trucks Are Showing a Handsome Profit and one-half ton trailer, has a capacity for common-brick of 2,600, the truck carrying 1,600 and the trailer an even 1,000 brick. The five-ton trucks and trailers have a total carrying capacity of 3,400 brick for each "train," the truck holding 1,800 and the trailer 1,600 brick. In addition to commons, these trucks and trailers also carry the company's "Harvard" face-brick, and, occasionally, hollow-tile.

A Trackless Train of Brick on Its Way to Washington

While the company has three yards operating in the vicinity of Washington with a total daily capacity of 200,000 brick, the trucks and trailers are used for the most part in making deliveries from its Potomac yard at Addison, Va., a distance of about four miles from the Capital City. There is somewhat of a grade between Addison and Washington, but this does not cut down the speed of the trucks to any extent.

SAVING SHOWN IN SPITE OF ANTI-DUMPING LAW

Each truck carries a crew, consisting of a chauffeur and four men for unloading the brick. There is an ordinance in Washington against the dumping of brick, so that all of this ware has to be piled, except in special cases. While, at first thought, it would seem that this obstacle would rob the trucks and trailers of much of their efficiency and ability to lower delivery costs, yet this is not the case, for, altho Mr. Miller has not as yet gone very deeply into the cost of operating these trucks and the keeping of comparative figures, nevertheless he feels assured that he is saving money thru their use. While his figures are not complete, he knows that his teams have not been able to make more than two trips a day at any time. In contrast to this performance the trucks make four and five trips a day, the large ones carrying 3,400 brick, while the best a team can do is to carry a little less than 1,600 brick each trip. Mr. Miller states that his teams cost him $4 a day. While he does not know exactly what his trucks are costing him, he figures that they earn him a gross sum of $40 a day, inasmuch as they do the work of from eight to twelve teams, or an average of ten daily.

While some minor repairs are made to the trucks in the company's shops, the greater part of the work is sent out. Mr. Miller figures that at the present time, with a "fleet" of only three trucks, it would not be a good investment to install special machinery for making these repairs, but when additional trucks are put into service he intends to equip a shop for this work. The company, however, has not found it necessary to make many repairs, and so this item of expense in maintenance is not very large.

AUTOMATIC STEERING DEVICE ON TRAILERS

As may be noted from the accompanying illustrations, the trucks and trailers used by the Washington Brick and Terra Cotta Company are neat in appearance and strong, both being fitted with hard rubber tires. The trailers are so built that they can do no damage to the motor in the truck, and while they do not have any self-contained power, they have other mechanical features. One of these is a specially designed draw-bar with a spring that operates on both the push and the pull. This precludes any shock to the motor from sudden starts and stops. Another feature is an automatic steering mechanism that allows the trailer to follow around any corner in the exact tracks of the truck ahead.

The trailers are built entirely of bronze and steel with wood only in the wheels. The tires are of solid rubber, as has already been mentioned, but there is no traction on them, and the upkeep is, therefore, said not to be appreciable, as compared with the tires on the trucks.

CUSTOMERS WELL PLEASED WITH SERVICE

Without a doubt, the use of motor trucks by this firm has been productive of a large amount of good. Many of its customers have complimented the company on its prompt deliveries, which it is able to make with the aid of the speedy trucks, and rush jobs are, therefore, a specialty. Besides, the trucks have added considerable territory to the market of the company, as it previously existed, by making longer hauls possible in a shorter period of time at less expense than teams.

While up to the present time no other Washington brick concern is using its own motor trucks, several of them do hire trucks for special work, and not a few, it is understood, are experimenting with this type of delivery equipment with a view toward adopting it, if satisfactory.

GOVERNMENT ISSUES NEW BRICK ROADS BULLETIN

Country roads paved with vitrified brick are becoming quite common in many of our states, according to the professional bulletin "Brick Roads," recently issued by the Office of Public Roads and Rural Engineering, United States Department of Agriculture.

The principal advantage which brick roads possess, according to the authors, may be stated briefly, as follows: (1) They are durable under practically all traffic conditions. (2) They afford easy traction and moderately good foothold for horses. (3) They are easily maintained and kept clean.

The principal disadvantage is stated as being the high first cost, but it must be remembered that this is more than offset by the low maintenance cost. The defects which frequently result from lack of uniformity in the quality of the brick, or from poor construction, are usually to be traced indirectly to an effort to reduce the first cost, or to a popular feeling that local materials should be used, even when of inferior quality.

The first brick pavement constructed in this country, it is stated, dates back to 1872, and Charleston, W. Va., has the distinction of being the first American city to employ this product for paving. For a number of years after its introduction, however, the use of paving brick was confined principally to city streets and, owing to the frequent inferiority in the quality of the brick and lack of care in construction, very few of the early pavements proved satisfactory. Even now, after the experience of forty years has demonstrated that it is entirely practicable to construct satisfactory brick pavements, when proper care is exercised, and that much waste results from the use of poor materials or faulty construction, instances can still be frequently found where comparatively new pavements have wholly or partially failed from causes which might easily have been prevented.

The purpose of the new bulletin, which can be had free, as long as the department's supply lasts, by road engineers, supervisors, and others interested in the construction of brick roads, is to make clear certain important essentials in the choosing of brick for a pavement, and in laying it so that the highway will endure.

The selection of the brick is one of the most essential features, for the success or failure of such pavements depends, to a large extent, on the way in which the brick will withstand the kind of traffic for which the road is designed. The engineers point out that it is very poor economy to use a locally-manufactured brick, unless this brick is of a high standard. Color, specific gravity, absorptive power, or even the crushing strength of brick are not necessarily reliable tests. In general, of course, the brick should be uniform in size, perfect in shape, free from ragging and deep kiln marks. Each brick should be homogeneous in texture and free from objectionable seams. Fire cracks should be limited in number and extent, and the entire brick should be vitrified, and should contain neither unfused nor glassy spots. Even field inspection and laboratory analysis, unless conducted by those especially experienced, may prove of little value.

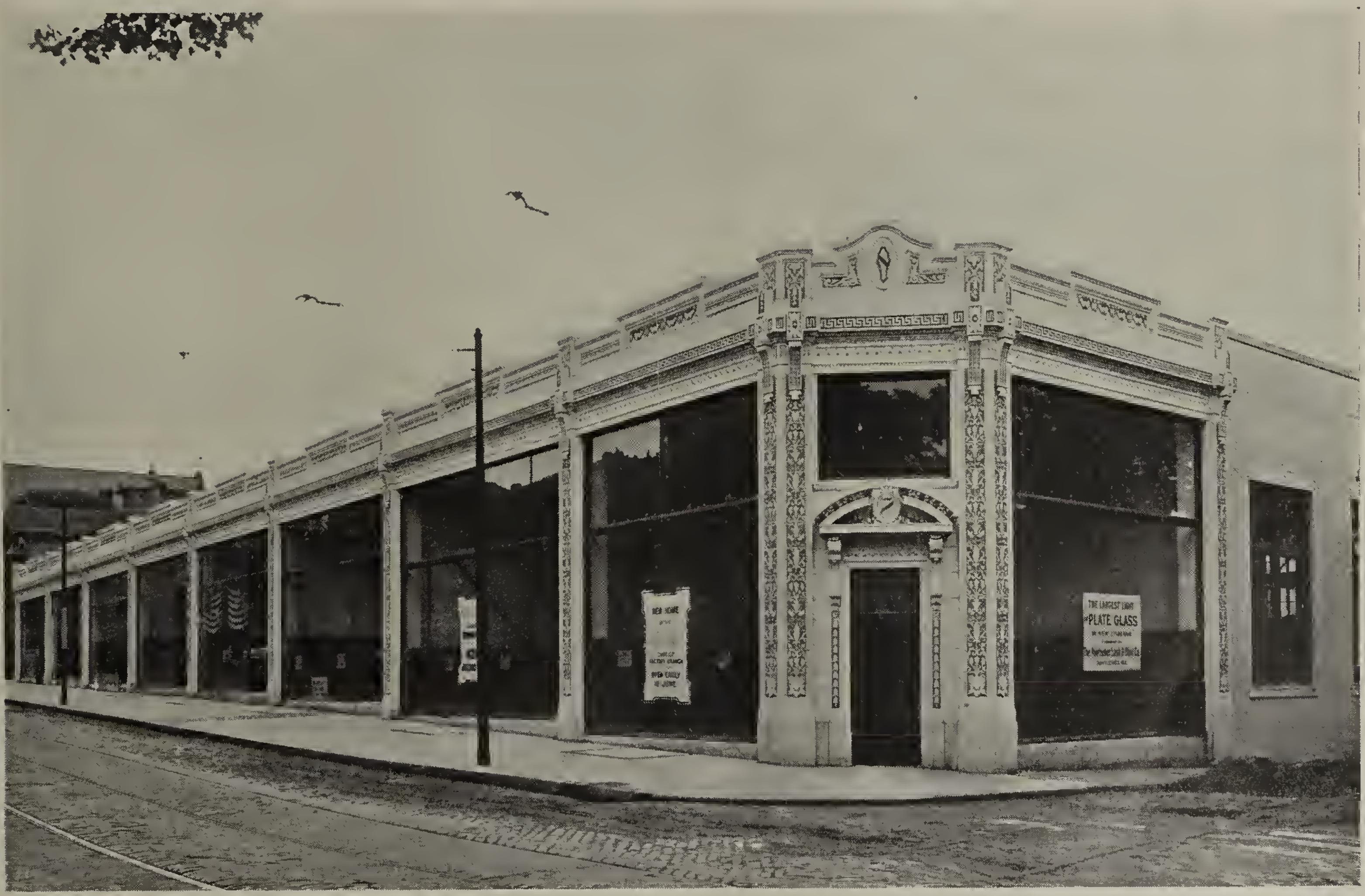
According to the bulletin, the test upon which highway engineers appear to place most reliance is the "rattler" or abrasion test. In this test ten dry brick are placed in a rattle barrel with ten cast-iron spheres 3¾ inches in diameter and weighing 7.5 pounds each, and enough spheres 1⅞ inches in diameter and weighing 0.95 pounds each to make up 300 pounds of metal. The loaded rattle barrel is then revolved continuously 1,800 times at a speed not lower than 29½ nor exceeding 30½ revolutions per minute. When the test is over the results are reckoned in terms of the loss in weight sustained by the brick. No piece of brick which weighs less than one pound is considered as having withstood the test.

Good paving-brick, under this test, ordinarily will lose from eighteen to twenty-four per cent. of their original weight. Specialists point out, however, that it is advisable to require a minimum, as well as a maximum loss which any sample may sustain. This is necessary for insuring against too much variation between the softest and the hardest brick which may be supplied.

The remainder of the forty-page bulletin is devoted to detailed descriptions and diagrams, showing proper methods of constructing brick roads, including the preparation of the road bed, the construction of the foundation or base, the laying of the brick, the construction of the curbing, expansion cushions, and the final finishing of the pavement. The paper also includes a chapter on cost of brick pavements. Special emphasis is laid on the maintenance of these roads and the need for proper engineering supervision in their construction. An appendix is devoted to typical specifications for brick roads.

It will be to the advantage of paving-brick manufacturers to add a copy of this valuable booklet to the literature already possessed upon the subject of brick pavements.

A STORE *with a* TERRA COTTA FRONT RARELY LACKS *a* TENANT



An Auto Sales Building at Providence, R. I., Which is Faced Entirely of Cream Glazed and Green Terra Cotta Manufactured by the Atlantic Terra Cotta Company. The Delicate Low Relief Modeling in Cream Shows Up Well Against the Green Background.

"TIGHT BOLT" SETTING *in* UP-DRAFT KILNS

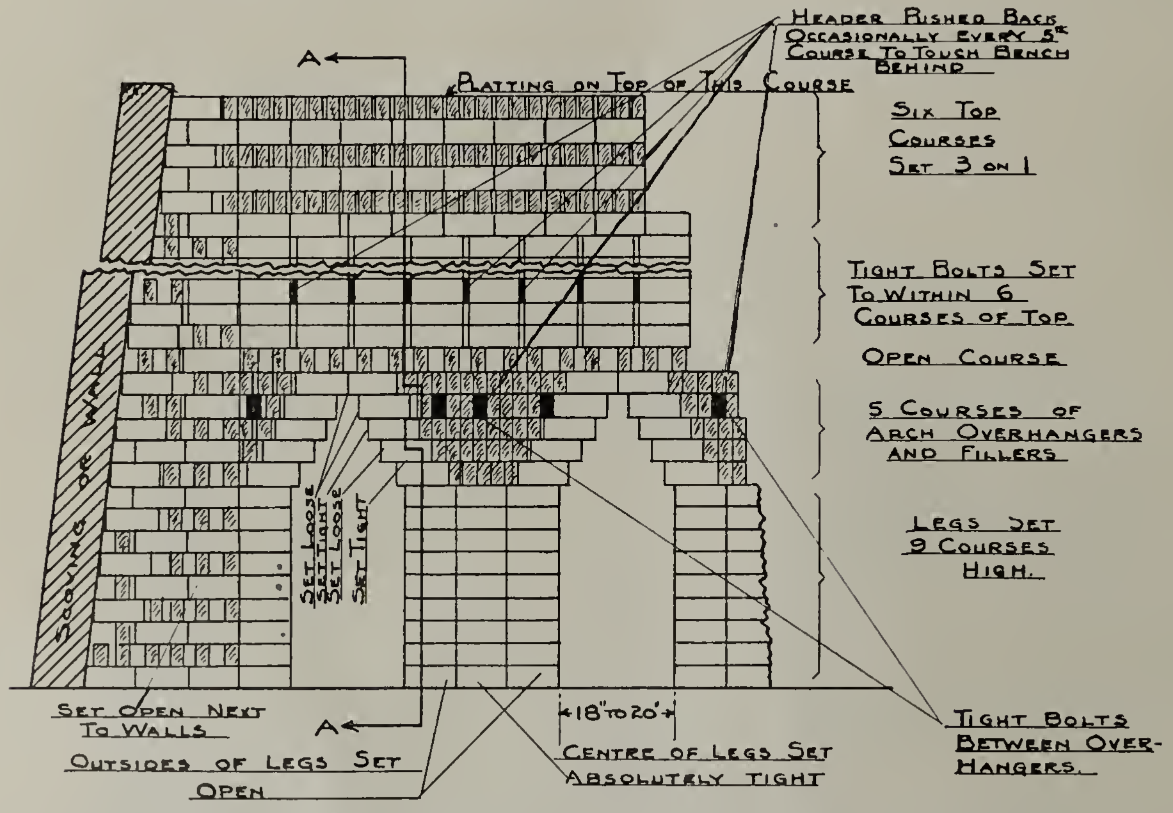
A Method That Is Little Appreciated in this Country, But which Saves Labor, Produces More Even Burns and Eliminates Kiln Markings

By A. F. Greaves-Walker

SETTING BRICK in up-draft kilns is a more complicated process than setting in down-drafts, and it is reasonably safe to say that there are far more methods of setting the former type than in the latter. Of these many methods, there is one that has found very little use in the United States, altho its many good points should commend it to the clayworker. This is known as the "tight bolt" method. When used in down-draft kilns, it is the simplest and fastest of all methods, and produces most excellent results.

The same can be said of this method for up-draft kilns, but on account of the necessity of setting arches and loose heads, as in all up-draft setting, the setters must be skilled men.

The good points in favor of this method are that, in that part of the kiln where the bolts are set, the brick are of more even shade; the setting is accomplished at a faster rate; the faces of the brick are a plain, even, unflashed color, and there is absolutely no kiln marking. Also, if the firing is done under occasional reducing conditions, the faces of the brick will show a red heart with brown or black ring—a much sought-after result.


Header Pushed Back Occasionally Every 5th Course To Touch Bench Behind
A
Platting on Top of This Course
Six Top Courses Set 3 on 1
Tight Bolts Set To Within 6 Courses of Top
Open Course
5 Courses of Arch Overhangers and Fillers
Legs Set 9 Courses High.
Scoving of Wall
Set Loose
Set Tight
Set Loose
Set Tight
Set Open Next To Walls
A
Outsides of Legs Set Open
18" to 20"
Centre of Legs Set Absolutely Tight
Tight Bolts Between Over-Hangers.

Detailed Drawing of Setting Showing Method of Building Up the Arches and Laying the Platting on Top. The Section Thru "A-A" is Shown on the Opposite Page

As will be seen from the accompanying drawings, the legs of the arches are set three brick wide, a general custom in this type of kiln (up-draft). The brick in the center of the leg are set tight, while those on the outside are set as open as possible. When the overhangers are reached, they are set in tight and open courses, as shown, and between them the brick are set in regular tight-bolts. Above the brick which close the top of the arches an open course is set. This course should be very open, in fact, as open as possible and still prevent the brick above from breaking under the load.

Above this course the "tight bolts" begin and are carried up to within six courses from the top of the kiln.

"Tight bolts" consist merely of an absolutely tight bench of brick. In looking at this bench it presents a solid face of headers. Each bench is set one inch from the one behind, this one-inch space being left for the travel of the fire gases. In order to maintain this distance a "follow board" is used. This is a one-inch board with a couple or more leather handles on the top edge. As the bench is carried up, the board is drawn up and allowed to rest on a few brick shoved back from the bench which is being set. In order to prevent the benches from rolling, every fourth or fifth brick in every fourth or fifth course is shoved back until it touches the bench behind. This makes the setting perfectly stable. Care must be taken, of course, to carry up the benches perfectly straight.

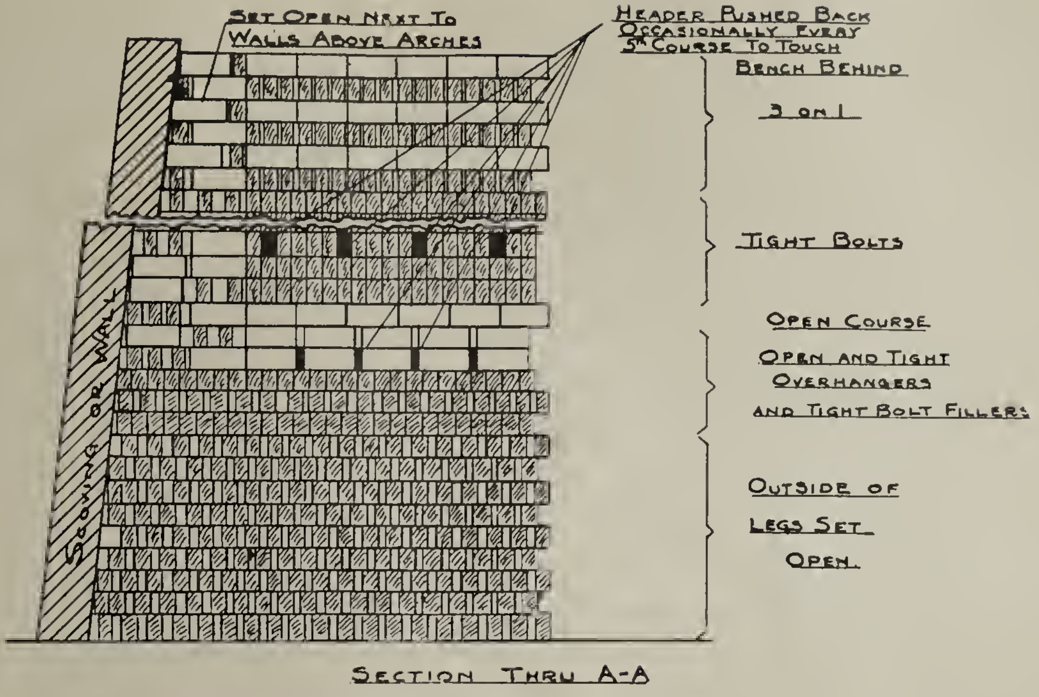
In this method of setting the setter can pick up from the car or barrow all the brick he can hold between his two hands, drop them on the bench and push them back against the follow board. It is exactly the same as taking burned brick from the barrow and placing them on a hack.

The brick should be set loose next to the walls in order to pull the heat to this usually backward part of the kiln.

The six top courses should be set three on one and on top of this the platting is handled in the usual manner.

Upon first looking at a kiln set with "tight bolts" the average plant manager or superintendent would pronounce it "impossible." It is, however, used with great success in some sections of the country, and where this method of setting is followed, it would be utterly impossible to persuade the clayworkers to change to any other method. The average recovery of *No. 1 face-brick* from up-draft kilns set in this way is well over fifty per cent., and this in districts where the brick must compete with the output of modern continuous and down-draft kilns.

Another Article by A. F. Greaves-Walker Will Appear in the October 3 Issue of "Brick and Clay Record." It Will Deal With the Operation of Producer-Gas-Fired Chamber Kilns and Should be of Intense Interest to Every Progressive Clay Products Manufacturer.


Set Open Next To Walls Above Arches
Header Pushed Back Occasionally Every 5th Course To Touch Bench Behind
3 on 1
Tight Bolts
Open Course
Open and Tight Overhangers and Tight Bolt Fillers
Outside of Legs Set Open
Scoving or Wall
Section Thru A-A

Cross-Section of Kiln, Showing Again How Platting is Laid and the Loose Setting of the Outside Brick in the Arch Legs. This Drawing Also Shows the Solid Face of Headers Present by a Bench of "Tight Bolts"

* * *

Philadelphians Report Continued Prosperity

Individual and collective reports received this month from brick manufacturers and dealers in and about Philadelphia, Pa., show existing conditions in the local field as having undergone but little change during the month of August, as prior to the advent of the eighth month, current business and conditions with the local trade had continued at a brisk clip. The demand within the past four or five weeks has been such as to have necessitated what at this season of the year may truthfully be termed capacity operations of the various plants in this vicinity.

The most pleasing phase of this situation of seasonable prosperity is that a majority of the plants report still having a sufficient amount of business on hand or in view to keep things running smoothly for some little time to come. The paving-brick division is, perhaps, the only branch of the industry not busy at this time, city funds being low and no municipal work being given out. The demand for sewer brick has been of such a nature as to cause a scarcity of that product and the brick plants are operating at full speed in an endeavor to keep pace with the many orders being received. The outlook for the future is exceptionally bright and a general feeling of optimism is prevalent in the trade at this writing.

Strike Held No Fear for "Sixth City"

The threat of a general railroad strike carried no such dread to Cleveland as to many large cities. While Cleveland is intersected by six railroad systems, it is also the focal point for a system of brick highways that is regarded by experts as the most complete and substantial in America. When fear of a strike was at its highest, plans were practically formulated for making Cleveland independent of rail transportation so far as the necessities of life are concerned.

A preliminary survey showed that the city had supplies to last, variously, from one to twenty days, the shortest period being for milk and the longest for meat. Cleveland produces seventy-five per cent. of its flour and the raw material, wheat, comes largely by boat.

Mayor Harry L. Davis took the lead in calling for a volunteer mobilization of motor trucks, to take effect in case rail transport stopped. It was found, according to the Cleveland Automobile Club, that paved roads reached practically every dairying locality which serves the city. The latent meat supply, within trucking radius, was estimated as sufficient to last for two months.

In the matter of fresh vegetables and fruits there was never a moment's anxiety. Paved highways have so stimulated market gardening in the vicinity of Cleveland that the city is actually an exporting point for vegetables, rather than an importing point. Most of these gardeners have greenhouses and reach the Cleveland market at least once daily the year round.

Raritan River Plants Busy

New Jersey brick, terra cotta, tile and other clay products manufacturers report business as moving along nicely. Perth Amboy, Monmouth and Middlesex county factories are all working full time. The inroads on labor made by the munitions factories, of which there are five in the center of the Raritan river district, have all been overcome. Greeks and Hungarians are mainly employed in the clay mines of Woodbridge, Raritan, Sayreville and South River and, as one prominent clay miner and manufacturer recently stated: "We get it going and coming as a result of the war. The war caused the munitions plants to spring up like mushrooms over night and the laborers left us for the jobs that paid more money. In times of peace we would fill the places with men fresh from Europe, but the war has cut off the supply from that source."

Freight Tariff News

A hearing was scheduled, according to the docket of the Interstate Commerce Commission, for September 18, at Birmingham, Ala., before Examiner Burnside, in I and S docket, No. 866, taking up brick rates to Atlanta, Ga.

A hearing is also to be held on September 20, at Wichita, Kan., before Examiner McCawley, in case No. 8961, of the Kansas Buff Brick and Manufacturing Company, against the M. K. and T. Railroad Company, et al.

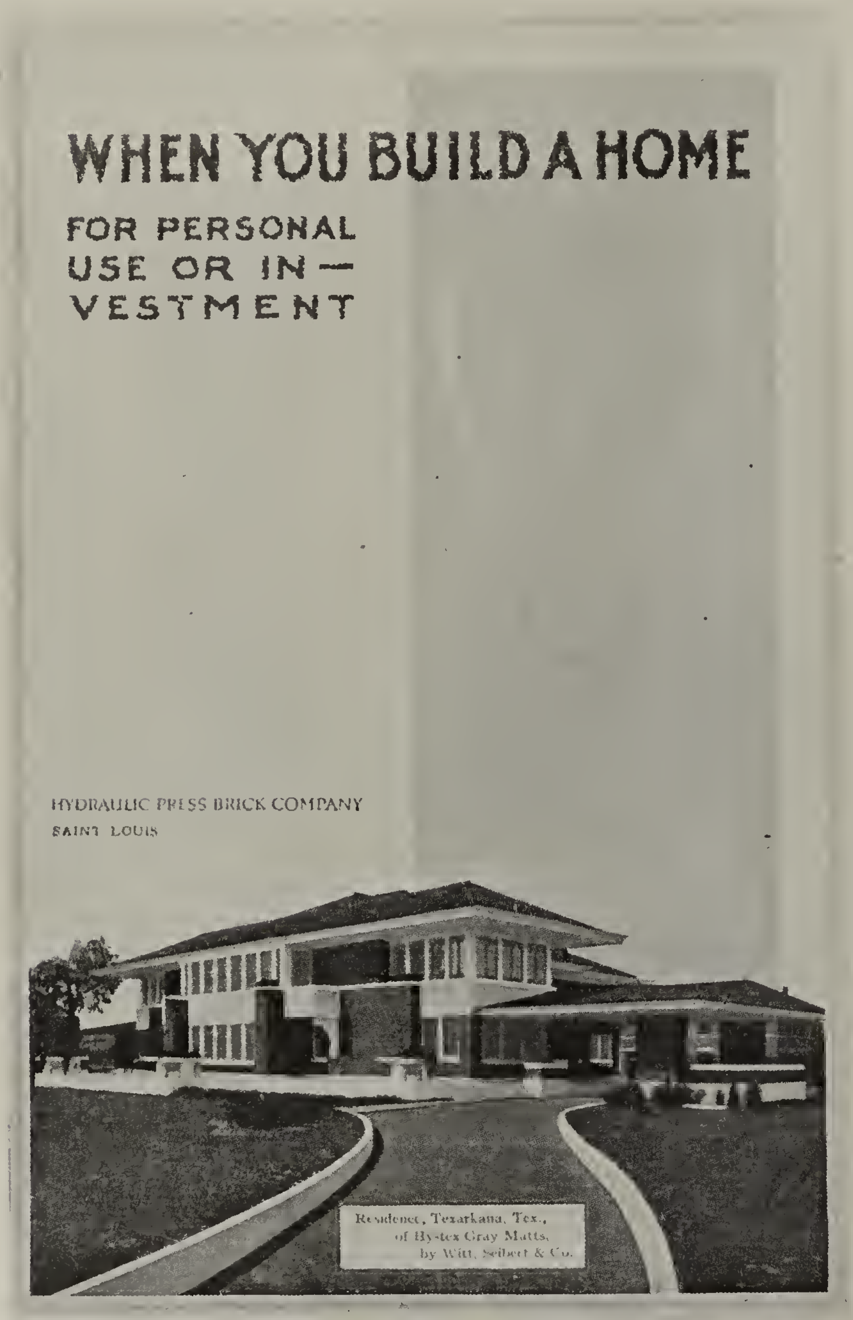
The commissioners have granted application No. 10,799 of the Chicago, Milwaukee and St. Paul Railway, concerning brick rates from Mason City, Iowa. They have authorized the road to establish a rate on brick and articles taking the same rates, carloads, from Mason City, Iowa, to Albert Lea, Minn., the same as the rate contemporaneously in effect on like traffic from and to the same points via the more direct line of the Minneapolis and St. Louis, and to maintain higher rates from Mason City to intermediate points between, but not including Austin and Albert Lea, Minn., provided the present rates to such intermediate points are not increased.

The Sayre and Fisher Company, Sayreville, N. J., has been allowed reparation amounting to $1,169.28 against the Raritan River Railroad Company, because of an unreasonable rate applied on thirty-four carloads of glazed brick shipped from Sayreville, N. J., to Philadelphia, Pa., during the period from June 7 to October 6, 1916.

"WHEN YOU BUILD *a* HOME"

To the already large collection of advertising literature published by the Hydraulic-Press Brick Company of St. Louis, Mo., upon the subject of brick construction, has just been added what might well be called the most beautiful and instructive booklet that has as yet been introduced to the building public.

Under the title "When You Build A Home," it lifts the veil of misunderstanding that has heretofore masked the relative merits and *the comparative costs* of brick and frame structures, and presents, in a striking and convincing manner, statistics and statements that prove the brick house to be an infinitely better investment from every point of view than its less substantial and unsafe contemporary, frame.



WHEN YOU BUILD A HOME

FOR PERSONAL
USE OR IN—
VESTMENT

HYDRAULIC PRESS BRICK COMPANY
SAINT LOUIS

Residence, Texarkana, Tex.,
of Hy-tex Gray Matts,
by Witt, Seibert & Co.

Black and White Can Hardly Adequately Convey a True Impression of the Beauty of This Page from the Hydraulic-Press Brick Company's New Booklet on Building with Brick

As may be judged from the title, the booklet is largely given over to the subject of brick homes, limiting itself in that part of the text which demands specific remarks, to a discussion of homes. Outlining the essential qualities to be considered in the construction of a home, which it gives as economy, durability, safety, comfort and beauty, the booklet goes on to show how brick construction fulfills every requirement. Beyond a doubt the most economical, since after five years the excess cost of this type of construction over frame has been absorbed by the cost of upkeep of the frame house, together with many other expenses and inconveniences attached to that type of structure and foreign to brick; with a beauty that has as tangible a value as has the land upon which it is built; safe against fire, frost, flood and time, and affording a comfort that surpasses that to be found in a home of any other material, are a few of the points, not lightly touched upon, but delved into and disclosed in the booklet until there remains no room for doubt in the mind of the prospective builder who may be fortunate enough to read this piece of literature before erecting his home.

Seldom before has the fire hazard and its close relation to frame construction been presented with more force than it is between the covers of "When You Built A Home." Comparing our $400,000,000 fire loss, when the expense of fire protection is added to the $250,000,000 of destroyed property, with the much smaller losses suffered in European countries in normal periods, it presents with conviction the absolute necessity of protecting ourselves and our families against this merciless demon by sheltering them in a fire-safe home.

Data that shows the comparative cost of brick and frame construction, gathered from cities that represent average conditions thruout the country, has been carefully compiled and presented and, it is interesting to note, an average of these figures is but 6.9 per cent.—this being the excess original cost of brick over frame buildings. However, the booklet goes on to say, it may be safe to assume this percentage as being anywhere between five and thirteen per cent. and, even in the case of the latter, brick would be a far more profitable investment for the home-builder.

Under the heading of "Useful Hints," the last pages of the book have been filled with suggestions of value and interest to the builder of a home, especially treating on the advisability of building with "Hy-Tex."

Much of the force of the booklet might be lost were it not for the attractive manner in which it is presented. Upon almost every page is to be found, in conjunction with the type matter, printed with a light green ink, an attractive photograph of some residence in which "Hy-Tex" brick have been used, reproduced in a rich dark brown—a combination that is exceedingly beautiful.

COST ACCOUNTING *for the* CLAY PLANT

Wherein Are Presented the Third and Fourth Tables of a Uniform System of Cost Keeping. Do Not Hesitate to Ask Questions

By A. J. Huac

TABLES for keeping the cost of "Digging" and "Power," together with an explanation of the various items that enter therein—the first of a series that go to make up a complete, uniform cost accounting system—were given space in the September 5 issue of "Brick and Clay Record." The tables that follow these, and which have for their subjects "Preparing" and "Making," are given below. *It will be remembered that an explanation of the signs that are used in these tables was printed in the August 15 issue, together with a few examples of their operation.*

PREPARING

The work of this department is to take the clay from the storage shed, pulverize, crush or grind it and thereby prepare it for use by the hand molders or by the machines that mold the clay into marketable shapes.

In plants where there is no storage of clay either before or after preparing, and where the raw material is used for only one product, this table can be dispensed with and the cost of preparation considered as part of the cost of making. In that case, table No. 4 can be used as representing the cost of preparing and making combined.

In plants manufacturing products of various weights as, for instance, a drain-tile factory, a fire-brick factory, which makes special shapes, or in a plant shipping ground clay, this table will be especially serviceable.

In some plants all the clay is ground in a dry-pan, and later, only part of it is tempered in a wet-pan. In such cases two of these tables should be used.

MAKING

The work of this department is to take the clay after it is ground or prepared and put it forth by machine or by hand into marketable shapes. Placing the ware into the drier, or dry room, should also be included here. As explained in the description accompanying table No. 3, some plants can use this table for the combined work of preparing and making, because in such cases the two operations are really combined in one.

Plants having two or more methods of manufacture, two or more machines, or two or more products from the same machine should use both table No. 3 and table No. 4. These plants should also use two or more tables, one for each method of manufacture. In the case of hand-molded fire-brick shapes the entire output should be worked out on a tonnage basis. Then a differential should be established for each shape, if desirable, on the same principle as used later in Table No. 25, Line No. 43, for the various classes of ware. The items in table No. 4 are similar to those in the previous tables and, therefore, the previous explanations will suffice.

DO NOT HESITATE TO ASK QUESTIONS

If there is anything that you do not quite understand, as you follow the unfolding of this cost system, please remem-

TABLE NO. 3—PREPARING

Line No.	Post From		Post To	
1	T19-III	Labor or Equivalent		
2	T20-III	Repairs, Tools and Supplies		
3	T2-14	Power		
4	T21-108-XXV	Water		
5	(1+2+3+4)	Operating Total	....	
6	T23-38	Tons Prepared	(11)	
7	(5÷6)	OPERATING COST PER TON PREPARING		
8	T22-III	Interest, Taxes, Insurance and Depreciation		
9	T13-13	Superintendence		
10	(8+9)	Overhead Total	....	
11	(6)	Tons Prepared		
12	(10÷11)	OVERHEAD COST PER TON PREPARING		
13	(7+12)	TOTAL COST PER TON PREPARING	T16-2	

TABLE NO. 4—MAKING

Line No.	Post From		Post To	
1	T19-35	Labor or Equivalent		
2	T20-IV	Repairs, Tools and Supplies		
3	T2-16	Power		
4	T21-109-XXV	Water		
5	(1 to 4)	Operating Total	....	
6	T23-38	Tons Manufactured	(11)	
7	(5÷6)	OPERATING COST PER TON MAKING		
8	T22-IV	Interest, Taxes, Insurance and Depreciation		
9	T13-15	Superintendence		
10	(8+9)	Overhead Total	....	
11	(6)	Tons Manufactured		
12	(10÷11)	OVERHEAD COST PER TON MAKING		
13	(7+12)	TOTAL COST PER TON MAKING	T16-6	

ber that a part of the duty of the editors of "Brick and Clay Record" is to give attention to questions and inquiries from its readers. We will submit anything you desire to know or to have made clear to Mr. Huac for an answer without any obligation to yourself and entirely free of charge. This is the service that we are offering in addition to the presentation of the system to our readers which can be had and made use of for the taking.

You have probably noticed by this time that frequent reference is made to tables which are to appear in the future. Obviously, it would be impossible for us to present the entire system for uniform cost accounting in one or even two issues, therefore, it has been necessary to follow this arrangement of publishing two tables every issue. It is our suggestion that, altho you will be handicapped to some extent in studying the system owing to the absence of the other tables which are to come, still you may find it to your advantage to peruse carefully the tables and explanations that have already been published and give the subject some study, so that, as the other tables appear, you can see whether your anticipations are realized or not. This will lend interest to these articles.

* * *

"Parry of Gary" Moves Office

W. H. F. Parry, a brick dealer of Gary, Ind., and the man who made hod-carriers out of letter-carriers, has moved his office and display rooms from the Borman block, Tenth Avenue and Broadway, on the south side of Gary, to 616 Washington street, on the north side. He has been noted as a "booster" of the south side for ten years.

Mr. Parry came to Gary from South Bend, when the former town was first started. He had been a circus man and always retained his broad-brimmed sombrero and tightly curled mustache that he sported in circus days. His early activities in the steel town centered in the handling of real estate, but eventually he entered the brick business in which he has made a success. However, his master move for fame came when the parcels post law went into effect by sending to the post office on the first day several thousand brick, wrapped separately. After that he was known as "Parry, the man who made hod-carriers out of mail-carriers."

U. S. Makes Crucibles of American Clay

Crucibles made from American clay have just been turned out in Washington by the Bureau of Standards. Strenuous tests have been made at the Bureau and the crucibles have been found satisfactory.

Secretary of Commerce Redfield, under whom the Bureau of Standards operates, is particularly interested in these experiments, owing, in part, to the fact that he was a manufacturer of iron products before he entered the cabinet of this administration. He has pronounced the crucibles good and thinks that in the future they will be made from American, and not foreign clays.

Examination for Laboratory Assistant

The United States Civil Service Commission announces an open competitive examination for laboratory assistant in ceramics, for men only, on October 4, 1916. From the register of eligibles resulting from this examination certification will be made to fill vacancies in this position in the laboratory of the Bureau of Standards, Pittsburgh, Pa., at salaries ranging from $900 to $1,200 a year.

This examination is held to secure eligibles having technical training in the subject of ceramics, comprising the technology of structural clay products, refractories and pottery.

As the supply of eligibles resulting from recent examinations has not been equal to the demand, qualified persons are urged to enter this examination.

Competitors will be examined in the following subjects, which will have the relative weights indicated:

	Subjects.	Weights.
1.	General physics	15
2.	French or German	10
3.	Practical questions in ceramics	50
4.	Education, training and experience	25
	Total	100

Applicants must be graduates of or senior students in a course of ceramic engineering or ceramics at a technical school or college of recognized standing. The names of senior students attaining eligibility in the examination will not be certified for appointment until they have furnished proof of actual graduation.

A rating of at least seventy per cent. is required under the third subject.

Age, eighteen years or over on the date of the examination.

Persons who meet the requirements and desire this examination should at once apply for further information and Form 1312, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C. Applications should be properly executed, excluding the medical certificate, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant.

AMONG *the* POTTERIES

Thru the action of the saggermakers employed in the potteries in the vicinity of East Liverpool, Wellsville, Salineville and East Palestine, Ohio, Chester and Newell, W. Va., in refusing to abide by agreements existing between the National Brotherhood of Operative Potters and the United States Potters' Association, an eventual paralysis of the pottery industry in those centers is very likely to result. At the same time the action of the saggermakers has caused the manufacturers to look for machinery to do the labor the men have been performing, and this will result in the elimination of saggermakers in potteries, should present plans prove successful.

The saggermakers took "the bit in their teeth" and went after the manufacturers direct for what is known as "free clay." The officials of the National Brotherhood of Operative Potters were not consulted. The manufacturers advised the saggermakers that they had an agreement with the brotherhood governing working conditions which did not expire until October 1, 1917 and, therefore, could not treat with any local union. The officials of the brotherhood, when officially notified by the United States Potters' Association of the strike of the saggermakers, ordered the latter to return to work August 28, or stand expelled from the brotherhood. This local union met the night of August 28, and showed evident contempt for the national officers by ordering the notice from their head officials to "be placed on file." The strike continued. The action of the saggermakers is in direct violation of existing agreements between two organizations and, at the same time, the members of this local union hold the same record as many kilnmen who have disregarded requests from the officials of the brotherhood. Not in years has there been such strife among the pottery workers as has been evident this year. Action has not been directed so much against the manufacturers as against the national officers of the brotherhood.

Immediately following the automatic suspension of the saggermakers, the kilnmen held a special meeting in East Liverpool, and have refused to announce results of their session. Report has it that the kilnmen have arranged some further grievances to present to the manufacturers, and that the subject of calling a kilnmen's strike was discussed. The kilnmen now want the firms to have an oddman to do some sweeping of the floor about their benches.

Manufacturers claim that in more than one instance it has been found that the kilnmen have been guilty of not filling saggers to capacity, thereby rushing the time of filling, but not securing a full kiln of ware. It is pointed out here that the kilnmen have been paid for work which they did not perform. In one instance where a kiln was counted, and it was possible to have ware valued at close to $5,000 fired off, the count showed ware only valued at $3,700.

J. W. Lawton of Trenton, N. J., has been spending some time in the eastern Ohio pottery district explaining a new saggermaking machine which is being worked with success in certain Trenton potteries. One of these machines will do the work of twelve saggermakers. That several will be installed in the eastern Ohio territory is not admitted. But it is planned by the manufacturers to install a new batting-out machine, which will do away with small boy labor in the clay shops. There has been much trouble in the clay shops this season because the boys either went out on strike against the jiggermen, or else would not work at all—preferring to go swimming or into the country during working hours. Thousands of dollars in wages have been lost by the workmen, and double the volume in ware to the manufacturers, as a result of the actions of the boys and saggermakers.

It will be only a question of time until the potteries in Ohio will be compelled to close, unless the supply of saggers is replenished. Some plants have a sufficient supply on hand to work for a few weeks only, while some of the larger plants can continue longer.

Because of labor conditions in the pottery industry, less ware has been produced than ever before. Manufacturers have been unable to get more than from sixty to seventy-five per cent. of normal capacity. There would not be much complaint about belated deliveries if the workers would give the employers their best efforts. Their contrary actions, however, have resulted in orders piling up and shipping being quite below normal.

POTTERS ISSUE STATEMENT ON LABOR SITUATION

The action of the United States Potters' Association in making a public statement concerning the exact situation now existing in the trade, which has to do with the labor situation, was the first of the kind ever issued from the office of the secretary. Those who could read between the lines could see that it will be only a question of time until the manufacturers will be compelled to take some decided action to protect not only themselves, but the industry as a whole. It also showed that some local unions think no more of honor and agreements than they do of a straw, and the statement said so in just so many words.

"WALKING DELEGATE" IS BEING CONSIDERED

Pottery manufacturers hold that they should employ a representative or "walking delegate" to visit all plants and see to it that the workers are giving employers their best efforts. It is pointed out that the workers have their shop committees, their national officers and delegates to see to it that all working rules are lived up to by the manufacturers, and that the manufacturers are entitled to as much consideration from the workers. The subject has been considered by a number of manufacturers, but no action is likely to be taken until later in the year.

SUPPLY COMPANY WORKERS MAKE ABSURD DEMAND

Workers employed at the plant of the Loutham Supply Company at East Liverpool, Ohio, made a demand upon the firm recently at two o'clock in the afternoon that they be given "free drinking water." The firm was given one hour to make a reply to the demand. This not being forthcoming, the workers struck at three o'clock. As a result, fifty pressers forced themselves into idleness, but returned to work the following day. Drinking water was always available in this plant.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

LARGE PANELS, ARTISTIC FURNISHINGS AND SPACIOUS ROOMS MARK DEALER'S DISPLAY

BECAUSE it is "different" and owing to the fact that it shows distinct progress in the displaying of face building brick, a brief description, together with the accompanying illustrations are given, herewith, of the sales offices of the United Fuel and Supply Company, Detroit, Mich.

This concern of dealers handles "Hy-tex" products almost exclusively, J. M. Beville—who has had considerable experience in the face-brick business and who has been associated for several years with F. H. Chapin, manager of the Hydraulic-Press Brick Company's Cleveland (Ohio) office—being in charge of this department.

Upon entering the lobby the visitor is confronted with a tastily designed step and column formation showing the practical and artistic use of brick for this construction. The remainder of the lobby is laid with enamel brick which illustrates the decorative possibilities of this product in its various colors and sizes.

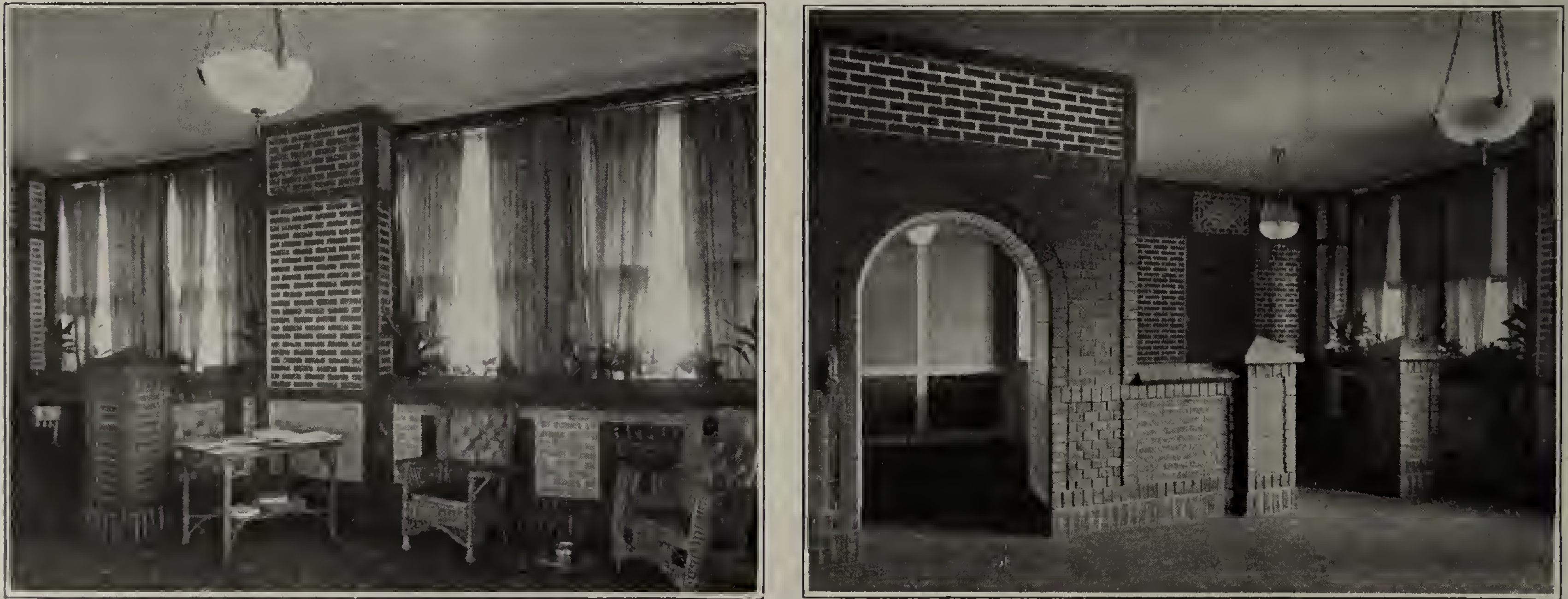
It might be said at this point that those who are in authority at this office claim that the panels in the various rooms are sufficiently large to make possible a clear analysis of each without the confusing influence produced by the close association with other panels that results when the display consists of a number of small units. In many of the panels shown in the rooms of this company two and three hundred brick have been used. This practice has also made possible a good showing of the bonds, something that is practically impossible with smaller panels.

A novel feature of this exhibit is the disappearing panels. These are in the nature of roller trucks with large rubber-covered wheels upon which is built up an eight-inch wall, three feet high and faced on both sides. These trucks, when not in use, are shoved into receptacles provided for them in the wall, a neatly finished door obscuring them from view. This permits the panel to be separated entirely from any other influence and to be wheeled about to obtain the effect produced by light coming from different angles. This is a most practical method of demonstrating to a prospective customer the true effect that will be obtained in the finished wall.

One of the features of the face-brick line which this company is handling is the extent to which the manufacturers have developed special shaped brick. Heretofore, when it was desired to run a coping on a wall, cap a gate post, form window sills or water tables, it was necessary either to work out the form with small pieces of brick or resort to the use of stone or some other foreign material. Note, however, the caps which surmount the two gate posts shown in one of the accompanying illustrations. These are made of one piece from the same clay and given the same texture and color as the standard size brick. The advantage of these shapes is self-evident and architects who have availed themselves of this service are enthusiastic in their praise of the results produced.

CREDIT ADVICE FROM A VETERAN BRICK DEALER

THE FUTILITY of selling anything without a definite prospect of getting paid for it is fairly obvious, but there are a good many engaged in selling brick, especially those new to the retail end of the business, who are inclined to overlook this important point. But the wise heads in the game have cut their eye-teeth in this connection, an illustration of which may be had from the fact that a leading retailer stated not long ago that, in ten years in the brick busi-



Two Glimpses Into the Display Rooms of the United Fuel and Supply Company's Brick Department. It is Very Evident That This Belongs to the Aristocracy of Brick Exhibits ness, he had lost only about $200, constituting a very small fraction of one per cent. of the business he had handled in that period.

A great many dealers, especially in the numerous cities where there is no organization among material men, are so anxious to get business that they let the credit angle get away from them in the heat of their effort to land the sale. After the sale is made and the brick are delivered and put into the building, they begin to worry about getting their money. At that stage of the proceedings, naturally, it is too late to worry, or to do anything else but charge the cost of the brick to experience and try to remember the lesson for the next time.

"When a man comes into this office to buy brick, it doesn't take me long, as a rule, to size him up," said the veteran retailer referred to above. "Of course, you can be fooled but, as a rule, I say, I can tell in ten minutes whether I've got a 'dead beat' on my hands, or a man who will pay for what he orders. If there is any doubt concerning the matter in my mind, I investigate before doing anything. In fact, we investigate, as a matter of course, in all cases before we let any brick be delivered. There are so many ways of getting an accurate line on a man that this is very little trouble. The commercial agencies are used on big jobs, now and then, but we don't have to refer to them often. Local sources, such as the merchants' rating books, other members of the trade—we trust each other here—and so forth, furnish all necessary information.

"What the man who is new in this work ought to remember, however, is that he doesn't have to put his trust in the customer's intention to pay; not entirely, that is. In every state in the union, as far as I know, the good old right of lien is made available by statute which means that if, within a certain period—thirty to sixty days, depending upon the statute—you are not paid for your brick, you can 'slap' a lien on the property for the amount of the bill.

"In this connection, it pays to 'stand in' with the general contractor. Make him your friend, and it will pay you. He knows that it will do him no good to have liens filed on the job by material men. In fact, it ties him up, and he will see to it that you are paid, if you get on the right side of him. Of course, people know that a live concern will seldom let anybody put it over on them, but at the same time, they will do it if you let them. Hence it pays to be on the job looking out for your rights.

"I have filed very few liens, but I have had, many times, to indicate that I was going to file one unless the money was forthcoming very promptly. In other words, the lien is a very handy club to have behind the door, for use on or exhibition to a man who would otherwise take your brick and let you whistle for your money."

Business-like methods are the best safeguard against bad accounts, in selling brick as well as in other lines. For instance, a clear understanding at the start will avoid much trouble in the future. If it is definitely understood that an initial payment for the brick is to be made at a given time, then if payment is not forthcoming, there is obviously something wrong, and it behooves the brick man to find out what it is. It is necessary now and then to stop deliveries as a means of enforcing payment of installments promised. This is usually effective, especially where a very distinctive brick is being used. Of course the right of lien exists until the statutory period after the completion of the job has elapsed, so that the brick man is pretty safe as long as this right is available.

The building-and-loan association is a valuable ally of the dealer, in cases where the building is being financed by such an organization. The material man's lien, of course, takes priority over the mortgage to the lender or to anyone else, which explains the diligence with which the association will see that all possible lienors are paid. As a rule, the practice of building-and-loan associations is to secure releases of the right of lien from all contractors and material men before advancing any money direct. It goes without saying that no brick manufacturer or dealer should relase this right without being very firmly assured that he will not lose any money. Where the association itself sees to the payment of bills, which is sometimes done, there is, of course, little chance for loss.

"If you have a good credit risk in the first place, however, the chances are all against your losing anything," concludes the dealer quoted above. "If you get 'hooked up,' don't hesitate to go after the debtor with every means in your power. If you have permitted the lien period to elapse, see if there is any money still outstanding on the job, and tie it up legally, if you can. Squeamishness in this respect has cost men, whom I know, large sums. It is all right to favor an honest man, but it is bad business to be too delicate with one who is out to 'do' you. On the whole, I should say that there is less danger of loss thru bad credits in handling brick than in any business I know of, if a man uses ordinary intelligence. If he doesn't, of course there is no telling what will happen to him."

* * *

Get After a Prospect Early

It is pretty safe to proceed nowadays on the theory that America has passed thru the period where her people built temporarily. In the mining and other small industrial towns, of course, there is a lot of temporary construction going on, for obvious reasons, but generally over the country permanence is one of the things that the builder is after. And, furthermore, the brick salesman who is alert ought to be able to "spot" those people who are going to build before they do decide on the character of their building.

In the cities the real estate transfer records, published daily as a rule by the newspapers or business record publications, or available to the man who will visit the courthouse to inspect them, give a good line on the prospective activities of the purchasers. In the smaller towns and in the country districts, it becomes a matter of common knowledge, almost, when some man considers the building of a new house, either to replace an old one or to improve a piece of property he has bought. The average man will readily admit his intentions to build, perhaps not immediately, but somewhat later.

Then is a good time to convince him that brick is the material he should use. There is plenty of literature on the superiority and desirability of brick which the dealer and the manufacturer can secure, if he is not already supplied with what he needs in that line. As soon as he gets the information that this man or that man is going to build, he should begin bombarding him with this literature. He can be sure that the man who expects to build will be interested almost immediately in literature on building materials and methods and that good literature will give the prospective owner a lot to think about.

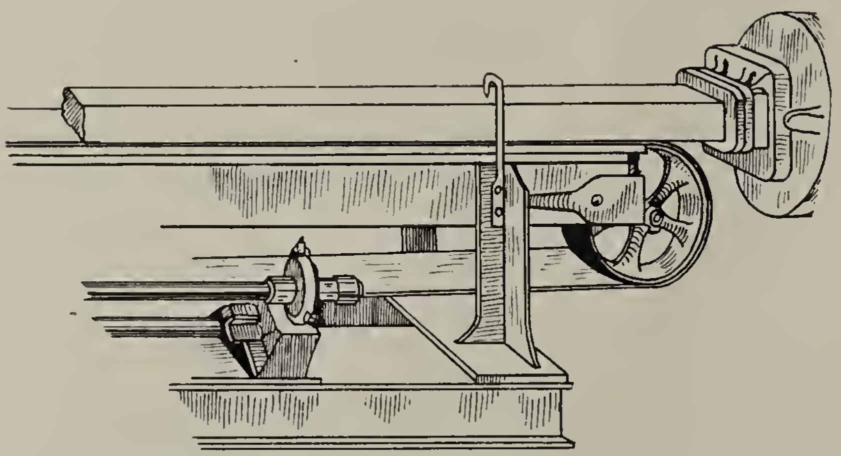
Brick dwellings cost more than frame for the most part in the minds of carpenter-contractors and builders who have not been advised of the truth. When a man gets in a position where he can finance a frame house he generally will be able to reach a little further and take care of a brick one, even if it does cost a little more than frame. He will get the increased investment necessary back very shortly in the form of reduced cost of upkeep, in cheaper insurance and the assurance that, as long as he wants a house, his brick home will do its full duty for him.

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Detecting Improper Consistency of Clay Column

A device that cannot help but be of value to practically every manufacturer of stiff-mud clay products has been taken from a Pennsylvania plant. It has always been more or less of a difficult task for the hackers to determine, if no better means is provided than their own judgment, when the clay is too soft, and when the brick or tile should be thrown back into the machine.



How Bent and Pointed Rod is Fastened to the Cutting Table to Indicate to Hackers When Column is Too Soft

In the accompanying drawing is shown how this novel and highly satisfactory method of automatically marking soft pieces works. When the column of clay issuing from the mouth of the die becomes too soft, the pressure required for it to push itself over the cutting table will tend to make it roll, or bulge, upwards, about one and one-half feet away from the machine.

By attaching to any rigid piece of the machinery at this distance from the mouth of the die, a rod bent in the manner shown and pointed at the end, with the point just about one-eighth of an inch above the clay column when it is running in the normal position, a marker is obtained that is sure to register improper consistency.

Since the point of the rod is placed so close to the top of the column, any bulge upwards due to its being too soft, will cause the pointer to immediately dig into the clay and leave a mark along the top of the column as long as the clay is in that condition. It is a very simple matter for the hackers to detect the mark on the piece and, being warned of its condition, send it back to the machine.

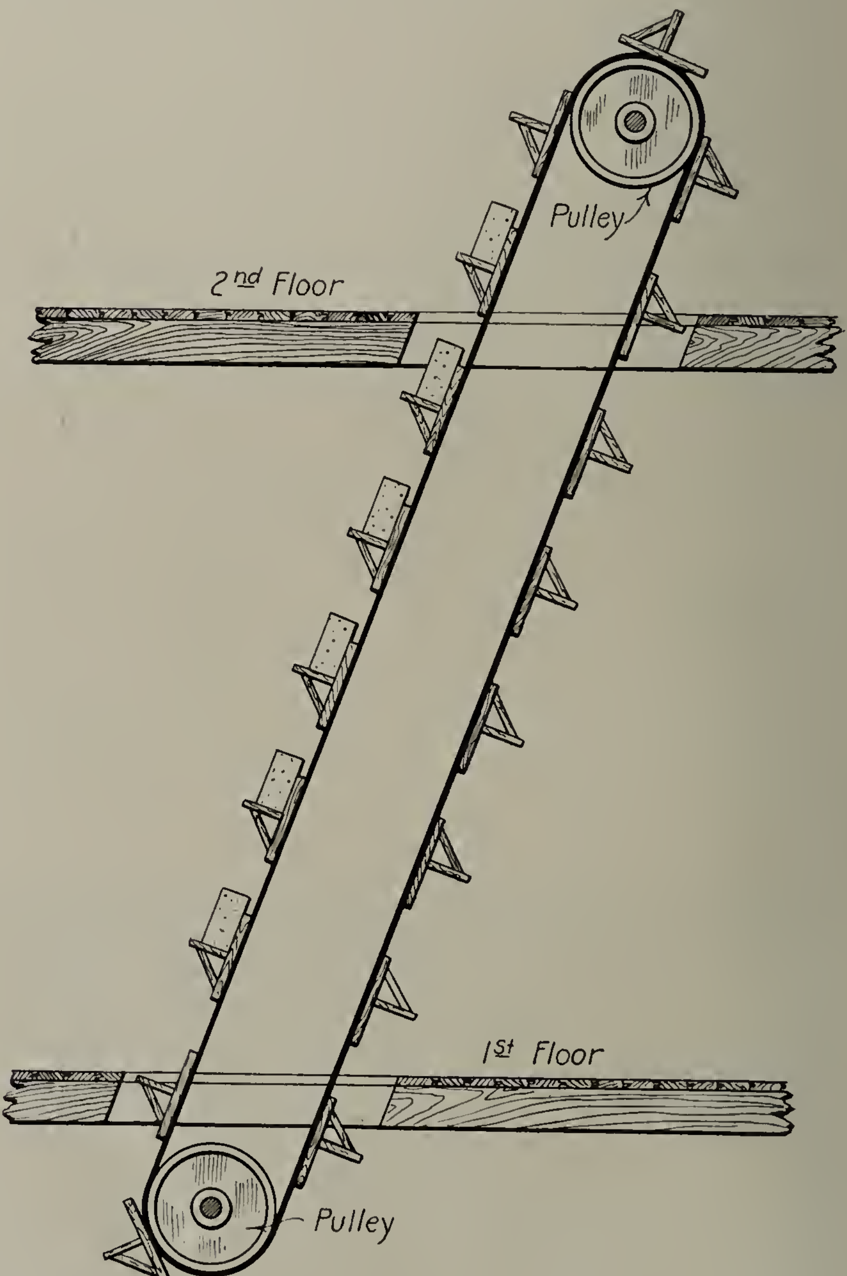
While, in this particular case, the point of the rod is about one-eighth inch above the clay column when it is of the proper consistency, this is a matter that can well be determined by the existing conditions and the character of the clay.

Cutting the Cost of Elevating Tile

Elevating the "green" ware as it is taken from the cutting table to the second floor of the plant where it is set in one section of an open-air drier (where such a drier is used), is a problem that many manufacturers of hollow building and drain-tile, operating plants with comparatively small capacities, have to meet and solve.

Often this solution involves the use of four or five trucks, operated by as many men, and a steep incline, or runway, leading from somewhere in the vicinity of the cutting table to the second floor. Little need be said about the inefficiency of this system. Besides entailing additional equipment and extra labor, it results in a high percentage of breakage in the ware being handled and usually a disgruntled spirit on the part of the men handling it.

Mechanical power, when it can be utilized satisfactorily, has always proved more reliable and economical, and this is an instance of where one Tennessee manufacturer has made use of mechanical power in place of human brawn to increase the production of first class ware and coin dollars in the form of additional profits.



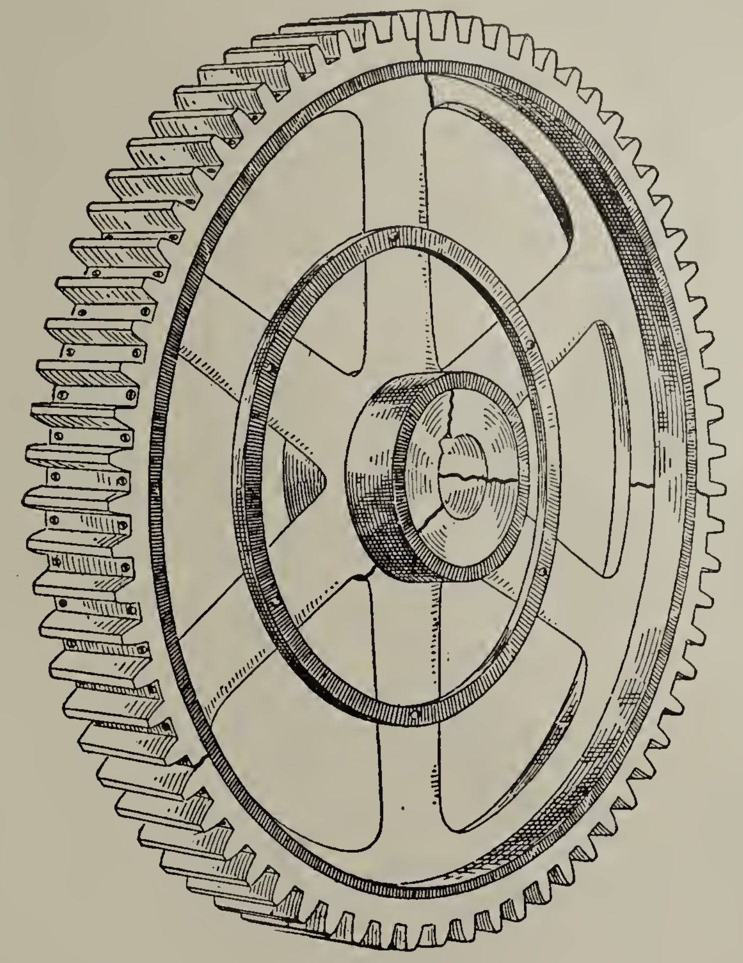
The Invention of a Tennessee Manufacturer for Transporting Hollow-ware from the Machine Room to the Drying Floor Above

It consists of nothing more than a belt conveyor, or elevator, provided with several shelves upon which the tile may be placed, that is located near the discharge end of the cutting table and runs up to the second or third floor, as the case may be. Due to the angle at which it is operated and the construction of the shelves, there is little danger of loss from ware falling. The conveyor is simple in construction, requiring only a small amount of material and as little headwork. In this particular instance, old wood has been used for the shelves, being fastened to the belting with rivets, but any substantial material may be used for this purpose. The speed of the elevator may be easily regulated by changing the sizes of the pulleys, checking it by substituting a smaller driving pulley and quickening its action by the use of a larger driving pulley.

The tile are taken from the cutting table, placed upon the shelves and elevated to the second floor where they are put on a truck and wheeled to that part of the drier in which they are to be set. At least one man and, in many instances, two, can be saved by the use of this method. Less time is consumed in setting and the handling of the tile is minimized.

Repairing a Broken Cogwheel

The accompanying illustration shows how I repaired a broken cogwheel in what seems to me to be record time. The break occurred at 9:30 a. m., and the one hundred or more hands about the plant expected to have a fine day fishing, but in three hours they were called in to work again. Two bands were made to slip inside of the rim and were bolted in between the cogs in countersunk holes, as is shown. Bands were shrunk on the hub and a ⅜x½ in. ring was also fastened about midway of the length of the spokes.
—Ray E. Hamill in "Power."



Detail Drawing Showing How Broken Cog Wheel Was Repaired

How Much Does Your Belt Slip Cost?

To compute the percentage of slip in your belts, use this formula:

$$100 - \frac{100\ n\ (d+t)}{N\ (D+t)}$$

where

n=r.p.m of the driven pulley
N=r.p.m. of the driving pulley
d=diameter in inches of the driven pulley
D=diameter in inches of the driving pulley
t=thickness of the belt in inches.

If your belts are transmitting full power, no matter how carefully you are attending to them, you will always get an answer to the problem, due to the elasticity of the belt.

However, if the answer falls within two per cent. you can consider your belts in good condition as far as slip is concerned. But if the result is much greater than two per cent. there is something wrong—the slip is excessive and may be very expensive, consuming power, as it does, year in and year out.

To compute the cost of the excessive slip for one year, use this formula:

$$\text{Cost a year in dollars} = \left\{ 0.98 - \frac{n\ (d+t)}{N\ (D+t)} \right\} P\ C\ H\ W$$

where

P =h.p. delivered by the engine to the driving pulley
C =cost in dollars of one h.p. per hour
H=running hours per day
W=working days per year

—N. G. Near.

* * *

Empire State's Production Increases

The total output of clay products in New York state for 1915, exclusive of crude clay, had a value of $10,002,373, as compared with $9,475,219 in 1914. Of this amount $4,886,734 represented the value of common-brick, the total production of which amounted to 934,724,000 in quantity. About 693,655,000 common-brick were manufactured in the Hudson river district alone, having a value of $3,531,413. The production of face-brick was valued at $153,572, as compared with $105,439 for 1914, while paving-brick had a value of $382,502 in 1915 and $680,226 in 1914. The great falling off in the value of the last mentioned product was due, for the most part, to municipal financial conditions and to the permanent closing of one large plant. The value of hollow-brick produced in the state during the 1915 period was $59,682, as compared with $38,119 for 1914; hollow building tile dropped from $245,034 in 1914 to $177,844 in 1915. Terra cotta also experienced a set-back in the value of its production, the values for the years 1914 and 1915 being $892,630 and $647,815, respectively. Fire-brick and stove lining had a value of $502,478 for 1915, compared with $331,671; drain-tile, $91,221, compared with $92,938; pottery, $3,064,274, compared with $2,405,676. Miscellaneous products were valued at $36,250.

Thirty-four counties reported a production of clay products, of which twenty-nine had an output of common-brick.

Figures Show Increased Building in 1915

Building operations in many of the larger cities of the country increased in 1915, according to the United States Geological Survey. In forty-eight selected cities the total cost of building was $641,769,199, an increase of $22,016,845, or nearly four per cent. over 1914. Twenty-eight of these cities showed an increase and twenty showed a decrease.

New York was the leading city in the cost of new projects, with $103,023,800, an increase of $28,993,559 over 1914. Chicago, which was the leading city in 1914, was second in 1915, with building operations costing $97,291,400, an increase of $14,029,690. Brooklyn was third, with a total of $45,601,851, an increase of $3,729,544 over 1914. The number of permits issued or buildings erected in 1915 in these forty-eight cities was 201,190.

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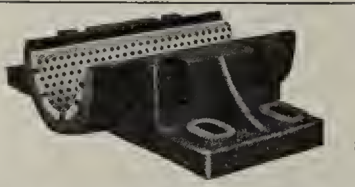

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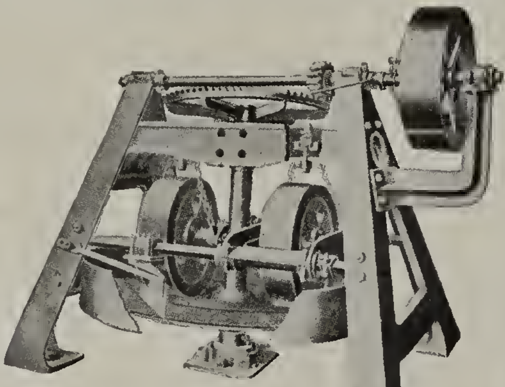

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Regaining the Draft in a Sooted Kiln

795. *Pennsylvania—Sometime ago, we had the misfortune of having a sooted kiln set with silica brick. Upon learning what the trouble was, we used every available means to open up the kiln and get the draft working in the right direction. What is your suggestion along the line of getting the draft thru the kiln? We used carbon oil, water, wood, straw and several other processes that we thought might help the kiln, but of no avail.*

One method of cleaning soot that our correspondent does not mention as having tried, is the use of a shot gun with a good powder charge, the gun being discharged into the fire-boxes. In order to be effective, it is necessary to close up the openings in the boxes and make the kiln as tight as possible. Sometimes, in fact, most often, it is necessary to empty the kiln for, if it is badly sooted and the ware contains carbon, the rapid ignition of the soot would "black core" the ware.

This would not happen with silica brick, however. In this case the ware cannot be damaged in the early stages and by opening up the wicket and cutting several feet into the setting, then resetting, an opening would be made thru which the draft could start. A good fire will soon ignite the soot and it will burn away.

Cost of Open Air vs. Artificial Drier

795. *Kentucky—We have a dry shed eighty-five feet long, twenty-four feet wide and twelve feet high at the eaves. We use racks and pallets, setting our drain-tile five high downstairs and five high in the center of the floor upstairs, ours being a two-story drier. Now, the question is this: We can built a new dry shed, a duplicate of the old one, for about eight hundred dollars which will double our drying capacity but it will leave us the victim of long damp spells and subject to early freezes and frost in the fall of the year. Can we put heat in or under this shed in a way to overcome these troubles, and do it more cheaply than a new shed or even at a slightly higher cost? We have two round, down-draft kilns, twenty-six feet in diameter inside measurement. One of these kilns is within twelve feet of the end of the shed and the other is fifty-eight feet from the shed.*

With the type of drier which our correspondent now has in use it would be practically impossible to employ waste heat from the kilns to dry his tile, on account of the absolute necessity for equal distribution of the air for safe drying.

It is presumed that the plant is steam driven and, if this is correct, the exhaust steam from the engine could be run into coils placed on the floor under the racks. These coils should be in sections so that any one of them could be cut off when the racks above were empty. Such a system would

and ANSWERS

Best Authorities in Every Clayworking Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

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dry more ware than two open driers of the size mentioned and do it regularly.

Naturally, the drier must have side walls and live steam must be used when the engine is shut down. A company furnishing equipment of this kind would give an estimate of the cost of such a system and comparisons could then be made with the cost of a new drier.

It would be wise, in considering this matter, to take into consideration the increased capacity of an artificial drier and the increased capacity of the kilns due to dry ware.

Cold Place in Center of Scove Kiln

776. *Oklahoma—I am burning an up-draft kiln and, after three days of settling heat, I discovered that I had a black streak in one of my arches about the center, and about five arches from the end of the kiln. I went on top and found that I had a cold place about ten feet square, as cold as the day the brick were set, and running to the arch. What looked so queer was that the brick on all sides were red hot. I have been trying to get this cold spot hot for two days, but have not been able to do so. Could you tell me the cause of this? The brick are settling fine all around this cold place.*

It is very evident from the number of letters which we have received from our readers offering their solution of the above problem, that this question has been received and studied with more than ordinary interest. Now comes a letter from another "Q and A" "fan"—William A. Butler of 4010 Fulton street, San Francisco, Cal.—who says:

"Let us look facts square in the face. If such a thing as a down-draft occurs in any part of a scove kiln, it is practically certain that the furnaces are too far apart.

"'But,' you say, 'we have the regulation four-brick bench and two-brick arch.'

"'All right,' say I, 'set three-brick benches and if your down-draft shows itself again, two-brick benches will remove it. Do not stop to reason it out, as I did, but try it and be convinced. In any kiln, whether it be a brick kiln, lime kiln, malt kiln or a bake oven, it is easier to regulate the heat where there is a surplus of furnaces than where there is a lack of them.'"

Grinding Bats for Sand-struck Brick

792. *Maine—Can you give me any information concerning the use of ground brick bats in place of sand on sand-struck brick? If this can be done, what kind of a grinder do I need? Would it be better to grind coarse gravel which we have near the plant? We are obliged to haul our sand about seven miles now.*

Since publishing the above question together with an

CRESCENT BELT FASTENERS

insure continuous operation of all machinery, with absolute freedom from breaking belt joints. The man who uses them will tell you of their superior efficiency and economy.

Send for Booklet Three

CRESCENT BELT FASTENER CO.
381 Fourth Avenue, N. Y., U. S. A.

KEEP THE HEAT WHERE IT IS PRODUCTIVE

by insulating the crowns and walls of your kilns with

SIL-O-CEL Nature's Non Conductor TRADE MARK

MADE FROM CELITE

Insulating Brick & Powder

Prevents heat penetration. Has 10 to 12 times the heat insulating value of firebrick. Produces absolutely uniform heat. Reduces fuel consumption.

The reduction in rejected pieces will pay for the insulation in the first month of operation.

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The Louisville Machine Company
Louisville, Ohio

Patentees of The Roller Process Paving Block System

Sand-Lime Brick Plants and Machinery

Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.

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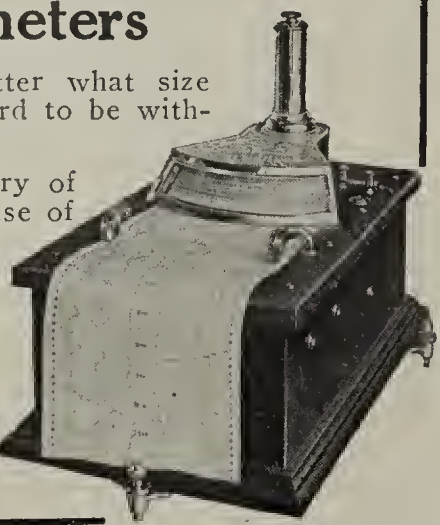

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Cost so little that, no matter what size your plant is, you can't afford to be without them.

Every one who makes inquiry of us is astounded at first because of our low quotations for complete installation.

Why don't **you** find out for yourself?

The Price Electric Co.
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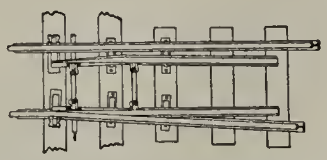

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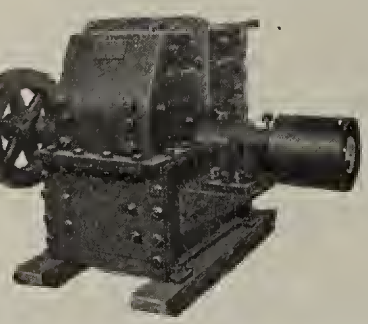
to look over your railway supplies and be sure everything is in good shape. We have an immense stock of raw material and can ship promptly switches, crossings, frogs, switch stands, rail braces, tie plates, portable track, etc. Send us your next order.

Catalog C gives complete details

The Cincinnati Frog & Switch Co. Cincinnati Ohio



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K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.

Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

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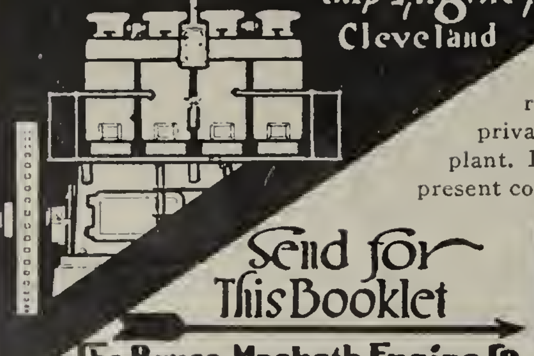

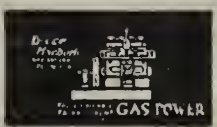

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Gas Engines
Cleveland

It will pay every user of power and electric current to look into a private power and light plant. It will surely lower present costs.

Send for This Booklet

The Bruce Macbeth Engine Co
2134 Center St. N.W.
CLEVELAND

answer in the September 5 issue of "Brick and Clay Record," a Wisconsin reader has written us as follows:

"We have used brick bats, pulverized and screened, instead of molding sand, in the manufacture of a red sand mold building brick, for many years with satisfaction. In our case it gives the brick a uniform color which cannot be obtained from the sand which is found near our plant.

"We grind our bats in a small pulverizer and then screen the ground material, using the dust and discarding the tailings. Operating the pulverizer from fifteen to twenty minutes each day will produce sufficient ground material for a day's run. A small pulverizer such as is manufactured by a number of firms supplying equipment to brick manufacturers, will be found to be entirely sufficient for this work. The brick bats, however, must be dry to give satisfactory results."

Burning Drain-tile in Up-draft Kilns

788. *Washington—We are burning brick in an old style, up-draft kiln. Could we burn drain-tile above the arches about four courses? The arches are sixteen courses high. We would set the tile from the sixteenth to the twentieth course and then put on six courses of one-foot drain-tile, or we could make low arches and burn a larger number of tile in the kiln. The demand is greater for drain-tile in our section than for brick and we do not have the capital to invest in a round, permanent kiln. Therefore, we would like to continue in some way to burn the tile in the scove kiln, using slab wood as fuel.*

It is strange, at times, the surprising results that come from the printing of a question from one of our readers who is troubled with a problem, such as is above outlined. This inquiry originally appeared in the "Questions and Answers" department of the August 15th issue on page 327. Since that time we have printed a reply—in addition to our own—sent in by another reader who happened to know of the successful burning of drain-tile in an up-draft or scove kiln in New York state.

We are, however, just in receipt of a third answer—this from Robert Twells of Alton Park, Tenn. We are glad to have these letters from our readers, as they nearly always give the results of personal experience which the writer has had in solving the same problem. Mr. Twells writes as follows:

"I notice in your issue of August 15th an inquiry as to whether drain-tile can be burned successfully in up-draft kilns.

"To my personal knowledge, nearly all drain-tile used in England was burned in up-draft kilns. Things may have changed there during the past few years, but I believe I would be safe in saying that more than half the drain-tile used is still burned in that way.

"The points of advantage in a down-draft kiln are:

"First, that it is unnatural for hot air, called draft, to go down, and it is only by the aid of a chimney that it is compelled to do so. In its resistance to the downward motion, the heat will spread to every part of the kiln and make it possible to get an even burn.

"It is different, however, with the up-draft kiln, for in the case of this type it is natural for the draft to go up, and it will shoot up anywhere it can get the easiest. The heat cannot spread when once it has commenced to go up a column of tile set one above another. For an inexperienced person to undertake to burn drain-tile in an up-draft kiln, the results generally are a number of hard spots and a number of soft spots, the entire burn is unsatisfactory, and the up-draft kiln gets the blame. The verdict is that it is not adapted to burn tile in, when the truth is that tile can be burned to a cherry red hardness cheaper than in a down-draft kiln.

"In order to be able to successfully burn tile in an up-draft kiln you must arrange the setting so the heat can spread out even in any direction before it enters the tile, as it has no opportunity to do so after it reaches this ware. This can be done by setting two flat or, if you prefer to face them up, set two courses high of brick, faced on each other crosswise of the kiln. Now set two courses faced on each other lengthwise of the kiln. It will be readily seen that the heat can spread in any direction among these four courses of brick before entering the tile. Now set anywhere up to nine courses of tile above these brick, probably eight are best. I would prefer small size tile on the bottom course and also on the top two courses. Do not place any tile inside another tile where there is not room to pass the fingers between the outside of the small tile and the inside of the large one in which it is placed.

"A kiln set with tile has a terrific draft and we have got to provide some way to restrain it, not only to prevent the heat from escaping, but to retard a certain amount of back pressure so that it will compel the heat to spread out in the courses of brick below the tile before it enters them. This is done by using whole brick for platting, place them flat in courses as tight together as possible on the top of the tile. No brick should be set edgewise under this platting. Now place a second course of platting flat on the lower one, only be very careful that the center of the brick in the upper course covers the joint in the lower course; this can be done by starting the top course one-half length back on the lower course, in this way covering the joints between the brick on the lower course, both lengthwise and sidewise absolutely covering every crevice in the lower course of platting. Don't be afraid of not having draft enough. You may have to pull up a few brick in the platting to give vent during the watersmoking, but place them down as fast as the draft will allow. If all the fires will draw in good that is sufficient. If any cold spots appear, give them vent by pulling out a brick in the platting. As soon as the soot is off, close them down again.

"To hold the heat in the kiln on the wall sides and ends, have a few courses of brick in the casing loose and keep these tight up to the tile. Let the wall fit close up at all times to the platting so that it is impossible for the heat to escape between the wall and the platting. This will save fuel and the tight platting will force the heat out to the walls and the tile will be hard clear to the walls. It is best to set two courses of small tile next to the wall all around the kiln both sides and ends. The top course of platting must run the same way on the kiln as the lower one and if, in burning, the platting parts and allows a space for the heat to escape, place a few brick across the opening and put a little damp earth on it. In other words, keep the top of the kiln as tight as the draft will permit. This will save fuel and secure an even burn. If you place any brick on edge on top of tile between the tile and platting, you cannot compel the heat to spread before it enters the tile, it will shoot up where there is the least resistance and spread among the loose brick on top of the tile until it finds an opening to escape and the result will be an uneven burn.

"Do not try to burn vitrified tile or glaze them in an up-draft kiln. It is not practical."

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In making it possible to discover on time each—and every fire, in preventing theft, vandalism—and sleep—in reducing your fire insurance.

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pays its own purchase cost in short order, and can save by prevention as outlined above, thousands of dollars. Let's talk it over.

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Ask for names of users and Bulletin No. 4

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They are made of steel—in the steel city—in the greatest clay district in the world. No better cars can possibly be made, and if you consider quality and satisfaction and low upkeep, you will have to give the highest honor to Youngstown Steel Clay Cars.

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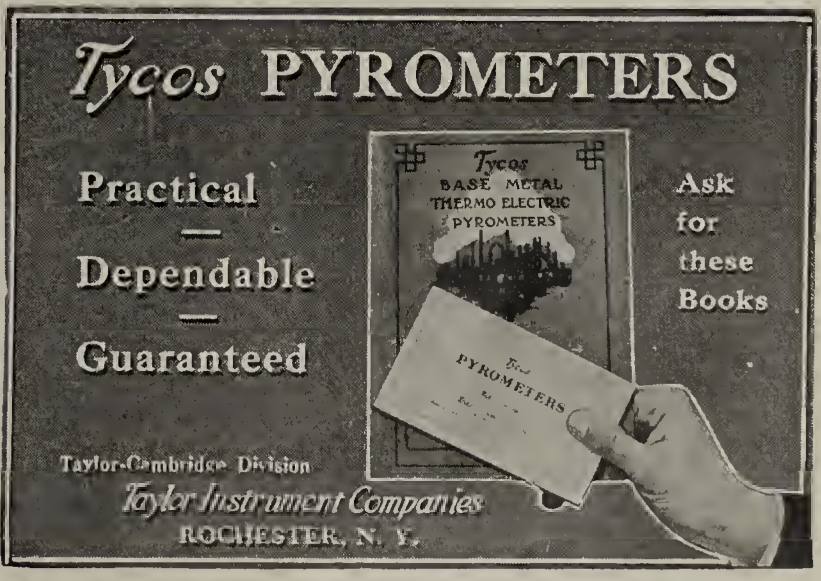

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Practical — Dependable — Guaranteed

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Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

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POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS

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Murray Iron Works Co. Incorporated Feb. 1, 1870 **BURLINGTON, IOWA**

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
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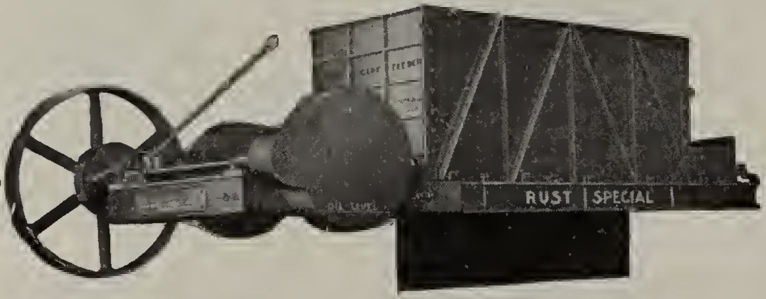

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THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

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All Sections from 12 lb. to 40 lb. per yard

Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

The Semi-Monthly Trade Review

WITH ALL OTHER CITIES maintaining the steady stride that has carried the figures covering 1916 building far ahead of those of previous years, a large decrease in the value of operations in New York City, Chicago and Cincinnati during the month of August has turned what might have been record-breaking returns to a report that shows a decrease of $4,397,880 when compared to national building figures for August, 1914.

BIG SLUMP IN AUGUST'S BUILDING

The aggregate value of permits taken out for new construction during this period, according to reports received from seventy-five leading cities in the United States, shows the figures for August of 1916 and 1915 as being $54,615,627 and $58,013,507 respectively—a decrease of 5.9 per cent. To a very considerable extent this loss is due to the falling off at New York City, where the total, $8,504,244, shows a decrease of nearly $6,400,000, or 42.8 per cent., as compared with the $14,859,218 of the same month in 1915. Every borough except Richmond, where a large gain appears, has a part in this indifferent report, Manhattan contributing a loss of $4,109,000, the Bronx $630,000, Brooklyn $1,352,000 and Queens $1,196,000.

Cities outside New York make a more satisfactory comparison, taken as a whole, the permits granted at seventy-four municipalities calling for the expenditure of $46,111,383, as against $43,154,289 the year previous, an increase of 6.8 per cent. There is but little evidence that the high cost of materials and labor has had much effect in the majority of cases, since some degree of improvement is shown by forty-nine of the seventy-four centers, and were it not for a decrease of $3,730,000 at Chicago, which for the first time in many months displays a falling off from the year before, and of $1,152,000 at Cincinnati, the returns for the entire country would have been entirely favorable.

MANY POINTS SHOW LARGE GAINS

However, these losses are more than offset by the material expansion at numerous points, so that the building outlook may be regarded as encouraging. Among the cities showing the most decided gains during August are Albany, $631,000; Buffalo, $581,000; Cleveland, $765,000; Detroit, $1,173,000; Houston, $500,000; Indianapolis, $548,000; Kansas City, $486,000; Minneapolis, $362,000; Philadelphia, $448,000; Pittsburgh, $705,000, and Toledo, $601,000.

A monthly record of building from the beginning of the year, however, shows the tremendous gain of $119,-

853,115 for this year's building up to September 1, over that of the same period in 1915. The figures are as follows:

	1916.	1915.
August, 75 Cities	$54,615,627	$58,013,507
July, 87 Cities	103,016,666	59,597,079
June, 86 Cities	72,408,488	57,733,981
May, 84 Cities	100,149,728	74,372,076
April, 83 Cities	76,927,860	66,930,612
March, 85 Cities	72,933,633	63,390,427
February, 82 Cities	47,580,578	40,105,569
January, 81 Cities	46,378,478	34,013,692
Since January 1	$574,010,058	$454,156,913

NEW ENGLAND BREAKS FIFTEEN-YEAR RECORD

Local reports from points thruout the country, with the exceptions that have already been noted, reflect general conditions as being highly satisfactory. From Boston comes the statement that building and engineering contracts in New England awarded during the year to August 30 exceeded those of the corresponding period of 1915 by more than $20,000,000 and led 1912, the highest in fifteen years prior to 1915, by nearly $7,000,000.

More than $1,000,000 increase in building work was realized last month over the month of July in the city of Philadelphia. Construction work covering 1,247 building operations, for which 783 permits were issued, cost $4,472,120 during August, as compared with $3,101,385 spent for 1,040 operations in July. The number of building operations showed a falling off when compared to the corresponding period of last year, but an increase of $500,000 was made in value. Pittsburgh reports an August total that is practically double that for the same month in 1915 and far in advance of the figures for July, this year. Baltimore, Md., looks forward to the erection of homes for the accommodation of several thousand families in the vicinity of large industrial plants that are either expanding or starting as new enterprises.

OHIO SUFFERS FROM CAR AND LABOR SHORTAGE

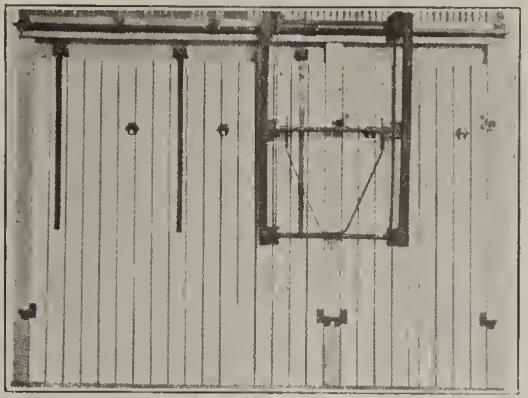
The worst feature of the brick business in Columbus and other Ohio cities is the car shortage which is becoming rather serious, and interfering with shipments to a great extent. This, coupled with the aggravated labor situation, has done much to put a damper on building activity thruout the "Buckeye" state. Altho the August returns on building in Cleveland show an increase of more than $2,700,000 over last year's figures, yet the fact still remains that the total value of building for the eight months of 1916 in the "Sixth City" is some $2,000,000 behind the same period last year. However, the erection of a $2,000,000 hotel at this point, now being planned, will do much to at least equal the figures of last year.

DETROIT REPORTS PHENOMENAL ACTIVITY

A much different story, however, is told of Detroit's showing in building for the past eight months. Not until the figures for this period were available could the extent of activity be appreciated. No less a gain than $10,266,580 has been made in building during this period over that of the first eight months of 1915, the respective figures being $30,745,210 and $20,478,630. During the month of August, alone, permits were taken out that were valued at more than $1,000,000 above those of the preceding year, or to quote the figures, $4,390,000 compared with $3,217,590.

On the other hand, the Northwest is doing little in building, reporting the conditions as being quiet and un-

Keep the Heat in Your Drier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Perfected Dry Kiln Door Carrier

Will handle doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

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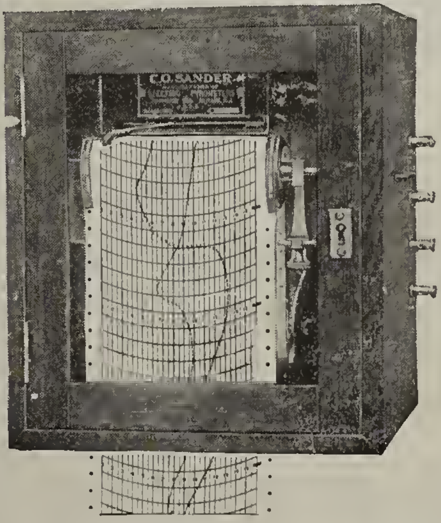

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eliminates absolutely all possibilities of an error in judgment.

It prevents over burned tops and under burned bottoms.

Because—with it you can control your temperatures.

It will save its cost on one burn.

Ask for details.

Sander Instrument Co.
136 19th Ave. Irvington, N. J.

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

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PERFORATED SHEET METALS OF EVERY DESCRIPTION
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"Toronto" Babbitt is made especially for brickmen, from the formula our experience has shown to be the best. Give it a trial and you'll use it regularly. Ask for prices.

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Build with Brick

STEEL HAS ADVANCED in price—but we have **not** advanced the price of the sheet steel "Build with Brick" signs. Orders for a limited quantity can be filled from stock at the old price of $5.00 per hundred. First come, first served. Better order **now.**

BRICK AND CLAY RECORD
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The Crosby Dryer

A practical, inexpensive dryer that has proven in actual practice that it saves time, money and worry.
A continuous dryer, heated by radiation and ventilation, with the temperature and humidity under control at all times.
Uniform increase of temperature and decrease of humidity from receiving to discharge end of dryer. Highest economy of fuel and operation, and lowest installation cost. Does not require track, dryer cars, tunnels, brick work, fans, stacks, fire-box or flues.
We invite correspondence.

Crosby Dryer Company
105 West Monroe Street
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Patent Pending.

eventful. In sharp contrast to this is the Omaha (Neb.) building total during August, which amounted to $652,357, as compared with $350,610 for August, 1915.

PACIFIC COAST SITUATION SATISFACTORY

While there are still a few small strikes in progress in the San Francisco territory, their affect is but slightly felt and business in brick and terra cotta is brisk, the sales record for August being the largest for many months. In San Francisco there is more important building going on at present than at any time during the past eight months. Many new undertakings have been started, with several more to develop in the immediate future. The peaceful settling of the railroad strike, here as elsewhere, came as a great relief to building material manufacturers and dealers. As it is, there has been much difficulty in getting the required number of cars to carry all of the freight ready for shipment, and needless to say, the clay products manufacturers are affected to a considerable extent. Sewer-pipe is enjoying great activity in this market, as is also fire-brick, the demand for which is expected to further strengthen at any time.

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Bert J. Graham, general manager of the Denison Interlocking Tile Corporation, Cleveland, Ohio, is visiting Missouri, Arkansas and Tennessee in the interests of his company.

James R. Marker, field commissioner for the Ohio Paving Brick Manufacturers' Association, with headquarters in Columbus, Ohio, left about the middle of September on a two weeks vacation trip on the Great Lakes.

H. H. Wilson, formerly with the Euclid Builders Supply Company, Cleveland, Ohio, and during the past two years salesmanager of the Donely Brothers Company, has returned to the former concern. He will be associated with General Manager C. E. Griese.

M. B. Cheney of Briggsdale, Ohio, has severed his connections with the Shale Products Company, Ltd., of Inglewood, Ont., Can., where he has spent the past four years in building the company's plant and developing its property, and has returned to Briggsdale.

John B. Rose, president of the Greater New York Brick Company, entertained more than two hundred New York city and state officials, engineers and contractors on August 30 at a clambake at his Marlborough (N. Y.) gravel quarry. The ex-senator proved himself an excellent host.

Frank R. Haws, for the past two years superintendent of Plant No. 2, the Western Stoneware Company, Monmouth, Ill., has resigned his position on account of ill health. Mr. Haws' loss will be keenly felt by both employers and the workmen, for not only has he proved a capable official, but he also won the friendship of those whose efforts he directed. On the day he left the plant, those with whom he had worked presented him with a twenty-dollar gold piece as a mark of their friendship. C. P. Quinn has been made temporary superintendent, to fill the vacancy left by Mr. Haws.

Jonathan Coxon, for many years one of the most prominent citizens of Trenton, N. J., recently celebrated his seventy-ninth birthday at his home, 91 Hillcrest avenue, where he received old-time friends and many congratulations from all over the country. Mr. Coxon, who was born in England, coming to this country in 1844, has been actively engaged in the pottery industry for many years. During his active business career he has been associated with such establishments as Coxon and Thompson, Ceramic Art Pottery, Anchor Pottery, Ott and Brewer Company, the International Pottery, the Greenwood Pottery and the Crescent Pottery.

Arkansas

The Arkansas Brick and Tile Company of Little Rock, Ark., has recently taken over the plants of the Arkansas Brick and Manufacturing Company located at Little Rock, and the Clark Pressed Brick Company of Malvern, Ark. It is the expressed intention of the new proprietors to improve both plants and increase their efficiency as much as possible.

California

Fresno, Cal., has $350,000 available for sewer improvements, and in a few weeks important contracts will be let. Bids have already been opened.

The city of Sacramento, Cal., has authorized bonds amounting to a quarter of a million dollars for storm and sanitary sewers and, it is expected, that the cost of needed improvements in this line will exceed the estimated costs.

The Steiger Terra Cotta and Pottery Company, San Francisco, Cal., is enjoying a fairly good business in terra cotta, but has no definite announcement concerning new jobs. The factory is operating at full capacity, as usual. The face-brick business is holding up well.

The case of the Stockton (Cal.) Fire and Enamel Brick Company and the Southern Pacific railroad regarding rates charged, which the brick company claims to have been unfair in specific instances, has been deferred again. A hearing was set for September 1 by the railroad commission.

Col. George Williamson, construction quartermaster at the Presidio military reservation in San Francisco, has submitted estimates to the War Department calling for approximately one million dollars to be spent on new buildings and other improvements at the Presidio. This will mean several large orders for local clay products manufacturers.

The large brick plant of Holt and Gregg, two miles north of Redding, Cal., which has been closed since last spring, has resumed operations with a force of forty-five men. An order for a million and a half brick, to be used in the construction of the new factory of the Diamond Match Company at Chico, will keep the plant busy for a few weeks.

N. Clark and Sons, San Francisco, Cal., are still making heavy deliveries of vitrified sewer-pipe to the city of Stockton and other communities. This company, while not having any especially large terra cotta contracts to announce, is delivering this material on a number of small jobs, which swells the volume of business to normal proportions. Polychrome terra cotta is being used on the new high school at Bakersfield, Cal.

TAKING this hard blue shale out of a 60-foot bank is *some task* when it comes to a steady job—but so far this little Model 28 "Marion," owned by the Akron Brick and Tile Co., at Akron, Ohio, hasn't slipped up noticeably. What it *has* done is to

Increase the Plant Capacity, Producing a More Uniform Brick

—two things that you and every owner are looking for with both eyes.

There's no question that Marion Shovels *are* doing big things for brick-makers all over the country. That's because they're built for the job, carefully planned in advance by people who know what clay-digging requires.

Special Brick-Makers' Catalog A120 makes good reading; glad to send it, without obligation, on request.

Marion

We Make Excavating Machinery of Every Description

Branches:
Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY
Established 1884 **MARION, OHIO**
121

WHO PAYS?

for the waste of time and fuel at your kilns **--YOU.**

But **YOU** can stop this waste by installing **HOOK'S LATEST IMPROVED PATENTED UP** and **DOWN DRAFT** uniform clay burning **SYSTEM.**

GUARANTEED

Can be built into old or new kilns at a moderate cost.

MR. C. HOOK is associated with this company and **WE** own and control all of his latest improvements in kilns, including his

GRATELESS FURNACE DRY KILN.

It's worth investigating. Let us "Tell You" more about it.

OHIO KILN COMPANY
Main Office **VIGO, OHIO**

Gold Medal Award

Panama-Pacific Exposition
for
THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS
Their Merits are Vouched for by
Hundreds of Satisfied Users
Ask for our New General Catalog No. 8
THWING INSTRUMENT CO.
437 N. 5th Street - Philadelphia, Pa.

How Would You Like To Be a Cave Man?

Not very well, I guess—yet any man, in these days of rapid action and swift changes, who does not read and absorb everything he can lay his hands on that pertains to his work might just as well be a cave man. Sooner or later he will be a back number and out of the running.

And this applies to the reading of the advertising as well as the editorial columns.

Are you keeping out of the cave?

W. W. Dennis of the McNear Brick Agency, San Francisco, Cal., announces that his company has delivered almost two million brick during August, which makes this a record month for the year. The largest order the company has received for common-brick in the past year or two is that just received for the new Southern Pacific building. This order calls for 2,300,000 brick. The McNear brick company operates its own barges for transporting brick, and consequently has not been as much hampered by the waterfront strike as some other concerns.

Colorado

It is reported that the Denver (Colo.) Pressed Brick Company has taken over the plant of the Clay Products Company, Castle Rock, Colo. Altho the condition of the plant, which has been out of operation for some years, does not permit of a large output at present, when improvements have been made and the plant put in order, the capacity will be appreciably increased.

Connecticut

Business continues brisk at Connecticut brick plants and the outlook is bright for some months to come. At many yards the labor situation has improved materially.

Brick manufacturers of Berlin, Conn., and vicinity, as well as those in other sections of the state, were much pleased with the fact that the embargo on freight shipments, declared by the New York, New Haven and Hartford railroad at the time the great railroad strike seemed imminent, was of short duration. Practically all of the yards were filled with brick and to have suspended shipments for any length of time would have resulted in the closing of some plants whose storage sheds were already filled.

Delaware

The National Clay Refining Company has been incorporated at Wilmington, Del., with a capital stock of $75,000 for the purpose of refining and shipping clays.

Idaho

The Emmett (Idaho) brickyard, owned by F. E. Graham of Emmett, recently started operations with a force of fifteen men, which is to be increased. The company is supplying 600,000 brick for the Boise-Payette Lumber Company.

The Moscow (Idaho) Fire Brick and Clay Products Company has taken a twenty-five-year lease on a five-acre tract of land adjoining the tracks of the Northern Pacific railroad, and will immediately begin the construction of its $20,000 plant. A spur track is to be built by the railroad company to the new plant site, while another track will be laid from the plant to the clay pit at Joels, a short distance outside of Moscow. The company will manufacture both face and fire-brick at the start and will have a capacity of from 35,000 to 40,000 per day.

With a daily capacity of 30,000 brick and operated by a force of twenty-six men, the Foster and Son's brick manufacturing plant at Boise, Idaho, is now one of the largest in the state, altho only a few months old. On the same site thirty years ago the elder member of the firm, Frank Foster, Sr., started the manufacture of hand-mold brick, raking the clay from the surface of the land. This he abandoned in 1911. Long before this time, however, in sinking a well, Mr. Foster noticed a heavy blue substance suspended in the water flushed to the surface, revealing the presence of blue clay underneath. In investigating his theory of the hidden deposit, founded years before at the time the well was drilled, a shaft was sunk this spring that proved the presence of the clay, which was found in a vein twelve feet in thickness and lying twenty-eight feet below the surface. Immediately the plant was rebuilt, modern machinery installed and the manufacture of brick undertaken on a large scale. A ready demand exists for the product of Foster and Son and a prosperous business has already been built up by the firm.

Illinois

The Chicago (Ill.) Refractories Company is the name of a new concern recently incorporated with a capital stock of $40,000 by Daniel W. Henry, Edward G. Carey and William M. Quinn.

A common-brick plant, to be built at a cost of $250,000, is soon to be erected at Thirty-ninth street and Fifty-second avenue, Chicago, Ill., by William G. Bohnsack. Mr. Bohnsack recently purchased a thirty-six-acre tract of land at this point from the Bush Estate of Rhode Island and Orville Peckham of Indianapolis, at a cost of $54,000. Work is expected to begin on the contemplated plant in the near future.

The rapidly growing business of the Consolidated Company, of which E. K. Cormack is president, J. J. Cronin, vice-president, G. H. Doerk, treasurer, and E. L. Kramer, secretary and attorney, has made it necessary for that company to seek more central headquarters, so it has moved its general offices and exhibit rooms to 707 Chamber of Commerce building, Chicago. R. D. Johnson, formerly with Fiske and Company, Inc., of New York City, has recently become associated with the Consolidated Company, which has just opened its third yard at Rosehill, Chicago.

Iowa

The Eldora (Ia.) Pipe and Tile Company reports a very busy season and is operating to capacity trying to fill the orders on hand.

The Harvey (Ia.) Brick and Tile Company is doing a good volume of business, shipping about five cars of tile a day. This company, one of the few in Iowa operating a shale planer, manufactures drain-tile and hollow building tile. T. J. Neiswanger, president of the company, is a candidate for the state legislature.

The De Soto (Ia.) Brick and Tile Company is doing a very active drain-tile business. H. L. McCombs, recently made sole owner of the plant when his former partner, M. W. Anderson, sold out his interests to him, is planning many improvements, designed to greatly increase its capacity.

The Carlisle (Ia.) Brick and Tile Company has had all it could do to keep up with the demand for its product, which enjoys a very wide market. M. Mitchell, part owner of this plant, is a mechanic of ability and his efforts in increasing the capacity have been highly successful.

Manufacturers of clay products in Iowa have all had a very prosperous year, having grounds for no other complaint than that of the shortage of common labor. This problem has been felt quite keenly in the "Hawkeye" state and, in many instances, has interfered to a great extent with the plants in turning out a capacity production.

"A Pyrometer with a Conscience"

IT IS THE

Beighlee

A Big Impressive Instrument

—made so sturdily that it resists rough handling.
—made so perfectly that it records perfectly year in, year out.
—equipped with a compensating device that compels your serious attention.
—equipped with the largest recording dial in existence (in itself a guarantee against errors, for a small dial CANNOT record accurately).

We say it has a conscience—we mean it. We go further—we say it is the best in the world—we can prove it.

Beighlee Electric Company, Cleveland, O.

Herman A. Holz, Hudson Terminal Bldg., New York City
Representative in New England States

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. East Liverpool, O. Philadelphia, Pa.
Boston, Mass. New Orleans, La.

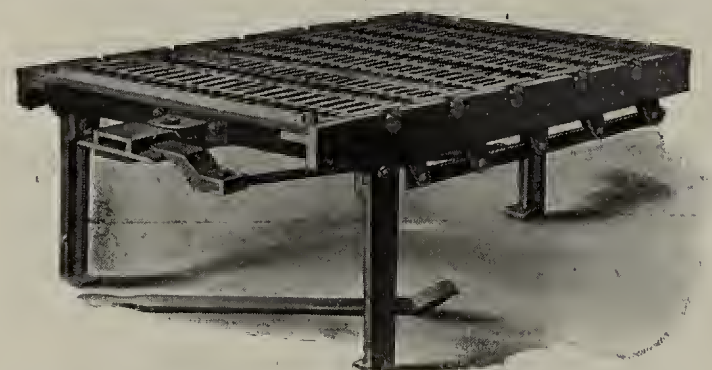
Your **Clay May Be Different, But—**

Absolute control of the drying elements (heat, humidity and circulation of air) makes THE STANDARD Drier adaptable for drying the **most difficult** clays successfully.

This fact we have demonstrated time and again to brick manufacturers with "different" clays to contend against.

Let us tell you what we will **specifically guarantee** in your case. Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

Robert Goodwin, superintendent of the state brick plant at Knoxville, Ia., conducted in conjunction with the Inebriate Institution, is meeting with considerable success in interesting local capital in a new hollow ware plant he is planning to erect at that point. Mr. Goodwin's many years of practical experience have proved of great value in the promotion of the new company, and his complete knowledge of the conditions underlying the industry is an assurance of the future company's success.

The Oskaloosa (Ia.) Vitrified Brick Company has completed various changes in the plant's equipment and is now operating. The additional crushing machinery, new and larger power plant and the producer gas system for burning the kilns spell efficiency with a capital E in the operations of this factory, enabling it to produce a high-grade product at a minimum cost. E. F. Bridges, general manager, under whose direction the improvements were made, predicts a prosperous future in store for this concern.

Operations have been started at the old tile plant at Harper, Ia., recently purchased by Thomas D. Marr. Various changes have been made in the equipment which, together with other improvements, have made it possible to manufacture drain-tile. Only the smaller sizes are at present being made, however. Mr. Marr, who has previously been in the employ of the Richland (Ia.) Brick and Tile Company, is one of the "younger blood" in the Iowa fraternity and, altho his hair has not grown gray in working clay, he looks for success in his new enterprise.

Kansas

The Western Shale Products Company, which was recently incorporated at Fort Scott, Kan., with a capital stock of $100,000 by M. M. Bushong and others, has started the construction of a modern, electrically-driven paving-brick plant at that point. In fact, the machinery has already been installed and the plant will begin operations very shortly. At the present time, there are only five paving-brick plants serving the great Southwest, and it is thought that the new company will enjoy a tremendous volume of business from the nine states that comprise its market.

Massachusetts

The Marcy and Gardner brickyard property at West Brimfield, Mass., is to be sold at public auction on the premises at noon, September 30. The property consists of about fifty-seven acres of land upon which is a brick yard operated by water power with ample clay deposits and a capacity of 20,000 brick a day. The yard is in operation and equipped with two brick machines, two disintegrators, two sand machines, a number of drying racks and kiln sheds, one horse with four one-horse four-wheeled carts and a variety of tools and implements. The yard has side track connections and includes a number of buildings for various purposes. The yard has been operated for upwards of sixty years and about thirty years without interruption. The annual production is about 2,500,000 brick.

Michigan

The Dresden Brick Company of Detroit, Mich., recently constructed a new display of face-brick that occupies two large rooms in the Hammond building of that city. Of a size sufficiently large to give the prospective buyer a good idea of the appearance of the brick in the completed building, the panels contain brick of every description, featuring the popular rough-textures.

A splendid face-brick exhibit is the latest addition to the permanent building exposition of the Builders' and Traders' Exchange on the fourth floor of the Penobscot building, Detroit. It is the display of the Colonial Brick Company. Various kinds of brick are shown laid up in an artistic manner. The Detroit Brick Manufacturers' and Dealers' Association is working on its minature brick house for this permanent exposition.

Minnesota

An interesting and effective means of advertising draintile has recently been brought to light. The Hutchinson (Minn.) Brick and Tile Company, of which M. C. Madsen is president, has one of its representatives making personal calls upon the farmers in the nearby country, who leaves a tile at every farm, together with literature describing the product of the company and presenting arguments in favor of tile drainage. Using a light automobile truck for this purpose, the representative is enabled to cover a wide area, spreading his doctrine of tile drainage, without fear of running out of "ammunition."

Nebraska

Fire recently destroyed the plant of the Beatrice (Neb.) Brick Works, causing a loss of about $7,000 and making it necessary to completely rebuild the factory if operations are to be undertaken again.

New Jersey

Metuchen (N. J.) is getting ready to celebrate the opening of its newest public building, the Edgar School. This building is a creation of brick and terra cotta, much of which is the product of Jersey plants. Charles S. Edgar made a present of five acres of land to the town and the school is named in his honor. Mr. Edgar is one of the town's wealthiest citizens. He owns valuable clay lands in Middlesex county, N. J., and in Florida and Georgia.

New York

The Central Tile Company has been incorporated at New York City with a capital stock of $5,000 to manufacture floor and wall tile. A. Hering, A. Manick and E. H. Rainbow, the latter of 511 W. 139th street, are the incorporators.

Ohio

D. D. Kurtz has recently purchased the tile plant at Mark Center, Ohio, which was formerly operated by L. E. Kitterman.

Commissioners of Muskingum county, Ohio, made a visit to Dayton recently to study the road building policies and the pavements of that city. It is reported that they were very favorably impressed with the many miles of brick roads in use at that point.

In selecting material for paving the Jackson-Ironton road, which passes thru Oak Hill and Jefferson townships, the commissioners of Jackson county (Ohio) approved brick. Macadam was given no consideration, as a permanent road with little or no upkeep was desired.

H. M. White, manager of the brick department, Hocking Valley Products Company, Columbus, Ohio, reports a large order secured from Jackson, Mich., to furnish 250,000 brick for the West Main street school building. The

Picture This Truck

in your plant during this hot summer and imagine how much easier it is to move the ware at three times the speed in lots like this.

Elwell-Parker Self-Loading Trucks

make the work easier and do it at less expense. Get our opinion as to what can be accomplished in your plant.

The Elwell-Parker Electric Co.
Cleveland

Heraeus LeChatelier Pyrometers

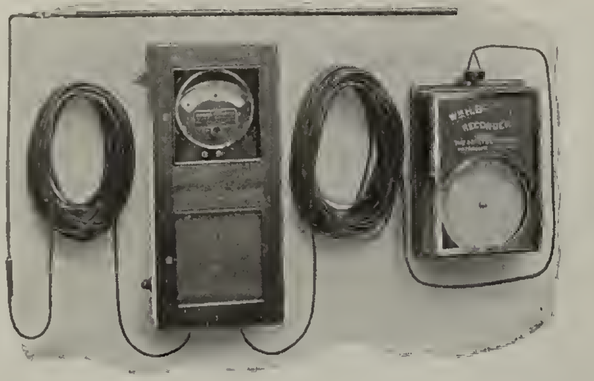
"The Ultimate Pyrometer"

Are designed and constructed to give lasting and uninterrupted service. Their higher first cost is many times offset by their lower maintenance cost.

180 Kilns have been equipped with Heraeus Pyrometers in the past year. Let us refer you to some who have them.

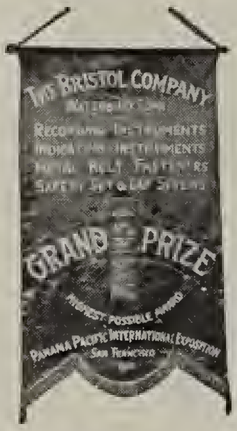
Send for New Catalogue

Charles Engelhard
30 Church Street
NEW YORK, N. Y.



Bristol's Pyrometer Installation

For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.



Write for Bulletin 205

THE BRISTOL CO.
WATERBURY, CONN.

BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO

HETTRICK Red Stitched Canvas Belting

"Sticks" on the pulley and "Sticks" with users. It's the kind of a belt you put on and then forget—except when you need more belting. Then you repeat Hettrick because it's the belt that satisfies — it surely "Beats Them All"

The Hettrick Mfg. Co.
Toledo, Ohio

work of shipping this order will be started in the near future.

J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio, which concern operates a large plant at Shawnee, Ohio, reports a continued demand for face-brick. He says the car shortage is growing worse. Labor shortage is also bad, altho the lack of cars is the worst feature at this time.

Emmett Howard, salesmanager for the Claycraft Brick Company, Columbus, Ohio, reports a good demand for all kinds of face-brick. "Business is fully sixty per cent. ahead of last year, and prospects for the future are exceedingly bright," according to Mr. Howard. "Demand has been steady during the entire season."

Ohio brick manufacturers see in the action of the President and Congress in enacting the eight-hour law for railroad trainmen a menace to their business. They claim that the precedent is a bad one for brick plants, as well as all other employers of labor, and regret that the action was taken.

Prediction that the coming fall will be one of the biggest seasons in the clayworking industry of northern Ohio, is made by J. E. Morrisey, salesmanager of the Cleveland Builders Supply Company. Mr. Morrisey bases his contention upon the start that has been made in the few brief weeks of cool weather.

A shortage of help is troubling Columbus (Ohio) manufacturers. A complaint was recently heard from the C. F. Brunt Tile Company, located on the C. D. & M at Chaseland. Advertisements asking for more than a dozen girls were inserted in the local newspapers with not a great deal of response. The girls are desired for the sorting department.

Charles Frank, salesmanager for the Nelsonville (Ohio) Brick Company, reports a good demand for pavers at this time. All of the contractors are asking for rush deliveries during the months of September and October. This, coupled with a shortage of cars on the Hocking Valley and other roads, is causing some strenuous days. But the company is getting thru with the rush in good shape, and everything is reported as moving satisfactorily.

The Pursell-Grand Company of Cincinnati, has secured a number of fair-sized brick jobs recently, in spite of the dullness of the Cincinnati market. Among these are the following: A colored church at Newport, Ky., 5,000 face-brick; the Pogue residence, Walnut Hills, 60,000 brick; R. K. LeBlond factory, Hyde Park, 60,000 brick, and the Warren County Infirmary, Lebanon, Ohio, 150,000 iron-spot brick.

Brick and tile manufacturers and dealers of Cleveland, Ohio, were very much in evidence at the annual fall outing of the Builders' Exchange of that city, held at Dover Inn, September 13. All kinds of sports were planned by the entertainment committee including the much-talked-of horse-shoe pitching "fest." The event also took the form of an annual "joy ride" as the party went to the Inn in automobiles, the procession starting from the Rose building. The festivities wound up with a chicken dinner.

The last brick to complete the paving of the National Road in Belmont county, Ohio, was laid during the latter part of August by the contractor in charge of the work. The brick was put down just west of St. Clairsville. The road thru the county, which has been paved with brick, has been formally opened to the public. With the exception of a mile thru the village of Morristown, the entire length of the highway west of the Ohio river has been paved.

A building project which will involve an ultimate investment of approximately $170,000, is being handled by the Samson Realty Company of Cincinnati, recently incorporated for this purpose. The company has 1,600 front feet of ground on Reading road, and will develop it by the construction of about twenty of what are known as St. Louis flat buildings, all of brick, at an average cost of about $9,000 each. The company's offices are at 718 First National Bank building, and C. I. West is president.

The Claycraft Brick Company, which has general offices in the Hartman building, Columbus, Ohio, shot its first oil well on its property near Shawnee, Ohio, September 11, with excellent results. The shooting was done by Miss Martha Hoagland, daughter of the president of the company. The property in question is on the edge of the Straitsville oil field, and there are quite a few producing wells in its immediate neighborhood. Another well will be drilled at once.

An amicable adjustment has been made of the contention between a long list of pottery manufacturers and the Ohio Fuel Supply Company that had grown out of a notice by the latter company that it would cease to supply natural gas to manufacturers after November, this year. The order will be suspended for a year, under the agreement, and the manufacturers are to use that time to equip themselves for operating without natural gas. Objection to the plans of the company to purchase and consolidate a number of concerns allied with it have been withdrawn from the Utilities Commission, and the request for authority to issue the securities was heard.

Some progress has been made on a plan under which all Cincinnati organizations in the building trades are to become directly affiliated with the Builders' and Trades' Exchange for the purpose of maintaining a sort of permanent open market for work and material, probably in a new building to be constructed to provide headquarters for the construction industry. Practically all of the brick dealers and manufacturers of the city are already members of the Exchange, and they favor the tentative plan for a joint exhibit of materials, but would probably not care to occupy joint quarters, or even quarters in the same building, it seems.

Leroy Gaddis of the Gaddis-Harrison Company, brick and clay products dealers in Columbus, Ohio, reports a good demand for all kinds of brick, but especially for face-brick. This concern is the central Ohio agent for about a dozen different factories. According to Mr. Gaddis, the outlook for business in the immediate future is bright. Charles F. Harrison, the other member of the firm, has just returned from a two weeks vacation. The Gaddis-Harrison Company has secured an order to furnish 200,000 face-brick for the State Normal school at Kent, Ohio, and 70,000 face-brick for the rebuilding of the Columbus Bread Company's plant on North Fourth street, Columbus.

A new ordinance, recently placed in force in Cincinnati, increases materially the cost of building in practically every case, by providing additional fees for all of the various inspections required, including plumbing, elevators, wrecking old buildings, and so forth. The day before the ordinance took effect there was a large volume of business in the building commissioner's office, plans being filed and permits secured for the erection of buildings which will not be put up for some time to come, in many cases, in

The problem of maintaining tight valves is most effectively solved -- when you equip with --

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W. Lake Street, Chicago.
Jenkins Bros. Limited, Montreal, Canada, and London, E. C. England.

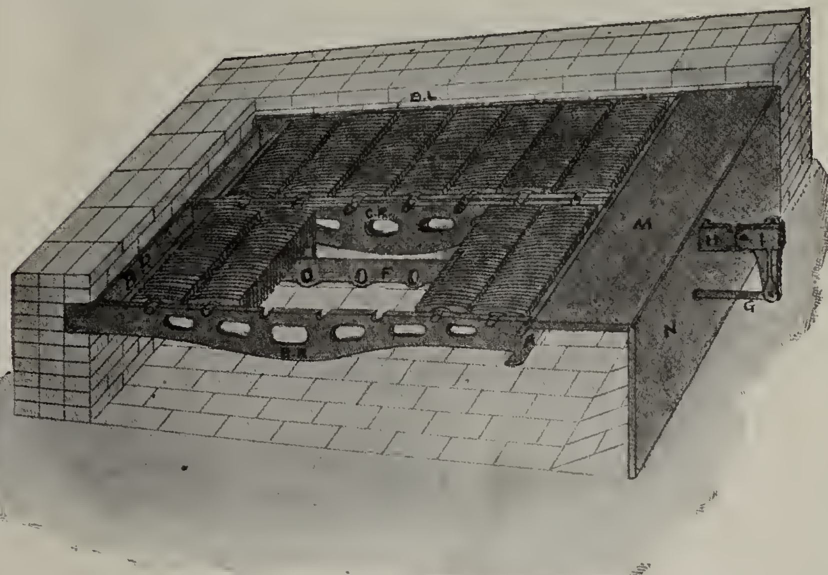
REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

Those brick companies that have installed the

CYCLONE BOILER GRATES

never have to worry about their power plants because they know they are getting more heat out of less fuel than they have ever been able to get in the past.

We had to prove it to them first, however, just the same as we ask the opportunity to prove it to you—by installing our grates on **90 days' trial.**



CYCLONE GRATE BAR CO.

BUFFALO, N. Y.

Reputation Rests on Uniformly Good Product

The value of a trade-mark or a firm's name depends wholly on the public's belief that it stands for a certain quality of goods.

This is the day of specifications in building materials—brick is ordered today by brand. The brick manufacturer who can establish a reputation for his line is assured success—providing he maintains his high standard always.

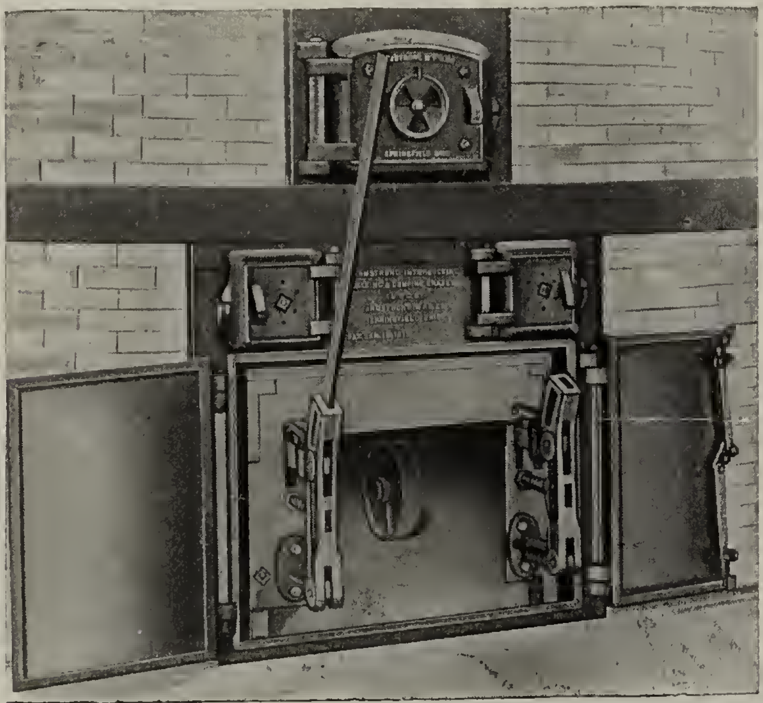
A single lot of brick that is just a little off may lose you the confidence of some of your best customers.

Drying is the process where there is the biggest chance for variation. You can maintain absolute control over this process if you have a "Sirocco Brick Drying System."

Its use prevents kiln-marking, checking, discoloration, and uneven burning. It makes you independent of weather conditions, hastens the cooling of the kilns and the drying of the product—and it assures a perfectly uniform product.

There is a book "The Brick Dryer" that all manufacturers of clay products should have. A request for Booklet No. 13-A will bring it.

AMERICAN BLOWER COMPANY
Detroit, Mich.
BRANCHES EVERYWHERE (33)



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

order to save the difference between the old and the new schedule of fees. The extent to which this was done may be gathered from the fact that an ordinary day's revenue in the office is from $100 to $150, while on the day in question fees collected amounted to $736.70.

One of the finest and largest jobs announced recently is the new home of the Fenwick Club for Catholic Young Men and the Boys' Home of Cincinnati, a $200,000 structure, to be built on Pioneer street, near Broadway, as soon as the old buildings on the site can be wrecked. Theis and Theis, architects of Dayton, Ohio, designed the structure, and will handle the contract as well. It will have a frontage of 135 feet, and a depth of 162 feet, the site alone costing $100,000. A dark, rough face-brick will be used for the exterior, with terra cotta trim, the design being of the modern Italian style. A gymnasium, a swimming-pool, a restaurant and cafeteria, and other modern features will be included, all affording an opportunity for the use of high-grade clay products.

An important move on the part of the Pennsylvania Railroad in Cincinnati, which has been anticipated for many years, is presaged by notices given by the company to tenants of its property under lease along Court street and Gilbert avenue, to vacate within a limited period. It is believed that the railroad company is preparing to build a large freight and passenger station in this part of Cincinnati, taking the place of its present station in the lower part of the city, which is subject to annual danger from high water. Several brick and material concerns, including the James G. Chrispin Lime and Cement Company, H. J. Conkling, and probably the Moores-Coney Company, would be directly affected if the move is carried out, as they occupy quarters on or near the railroad property in question.

Oklahoma

According to E. D. Bevitt, managing secretary of the Greater Muskogee (Okla.) Association, that city will be able to furnish four-cent gas to factories within sixty days. To accomplish this the city of Muskogee has just paid a bonus of $2,500 to have ten miles of eight-inch pipe delivered within thirty days, instead of sixty, as would have been the case had the pipe been purchased at market price. For ten years circumstances have prevented Muskogee from furnishing cheap gas to industries, but this handicap will be removed by the construction of the new ten-mile pipe line from that city to the Brushy Mountain field, where three wells have a combined production of over fifty million feet a day. It may be possible, now that gas is obtainable at such a low figure, that Muskogee clay products manufacturers will adopt that fuel for burning.

Oregon

After remaining idle for more than a year, the Sutherlin (Ore.) Brick and Tile Company has resumed operations with a full force of men. The plant is in charge of A. R. Foxley of Eugene, a practical brick and tile manufacturer of more than twenty years' experience. For the present, the plant will make drain-tile exclusively. Samples of the Sutherlin clay, submitted to tests in Ohio, prove it to be of exceptionally high quality for the purposes intended.

Pennsylvania

The Mount Union (Pa.) Refractories Company is making extensive improvements at its plant, having recently added eight new kilns to its battery and installed a new drier and rock crusher. A new molding room is also being built at this plant.

The Johnetta (Pa.) Brick and Coal Company has recently changed over from steam to electric power, despite the fact that it is mining coal in connection with manufacturing brick. This company reports an unusually heavy demand for its flashed face-brick.

The wooden roof on one of the drier buildings at the plant of the West End Brick Company, Frederick Bros., proprietors, Allentown, Pa., recently caught fire and threatened for a time to cause a general conflagration. However, prompt action on the part of the fire department prevented the flames from spreading, with the result that the loss was confined to about $1,000.

John C. McAvoy, secretary of the McAvoy Vitrified Brick Company, Philadelphia, Pa., reports that the company has experienced an exceptional demand for sewer brick, but that the call for vitrified paving-brick is of a quiet nature. This is due, Mr. McAvoy explained, to the condition of the city's finances, but there is every prospect that this state of affairs will be rectified in the near future.

The plant of the Kittanning Face Brick Company at Templeton, Pa., has just completed the building of three new kilns and an addition to its stock shed. This company is one of the few in the country employing a direct drive, that is, using no belts for transmission of power, but having the main shaft of the various units directly connected to gas engines, four of which are used.

S. B. Dobbs of Philadelphia, Pa., thru its Washington (D. C.) office, has been awarded the contract for furnishing 600,000 light gray impervious face-brick for a new apartment house costing more than $1,000,000, to be erected in the nation's capital by Kennedy Brothers, local real estate dealers. The new apartment will be one of the largest in the city and is located on one of Washington's most exclusive residential streets.

The Standard Refractories Company of Claysburg, Pa., is building two additional kilns and increasing its drier capacity. It is also installing a new engine, an electric generator and a crusher. With these improvements the plant will have a daily capacity of 83,000 silica brick. This company, operating one of the very few electrically-driven silica brick plants in the country, according to Thomas N. Kurtz, president, has shipped several large orders to South America.

Texas

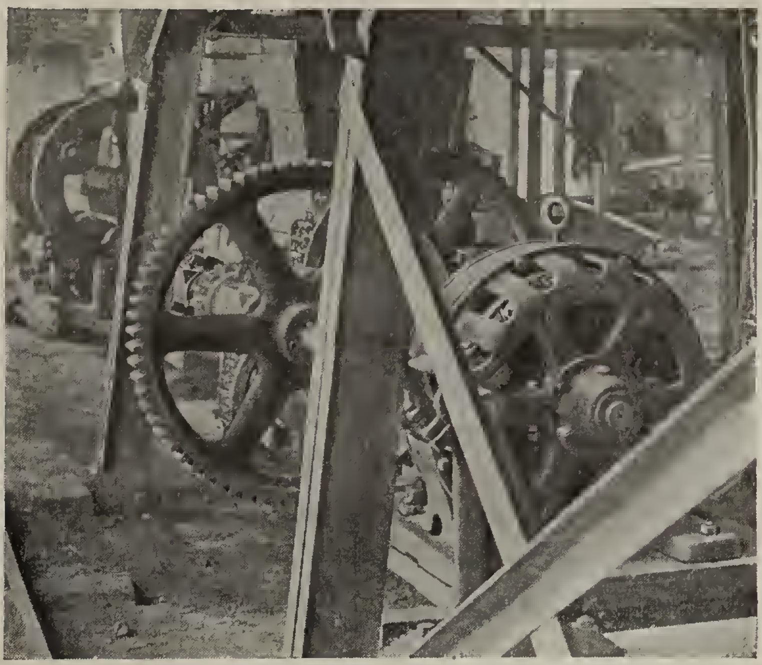
The Bay City (Tex.) Clay Products Company, a concern that has been doing business for a considerable period of time, has been incorporated with a capital stock of $25,000 to manufacture clay products. J. W. Ruggeley, B. E. Norvell and Charles H. LeGendre are the incorporators.

Virginia

The Rappahannock Brick Corporation has been incorporated at Richmond, Va., with a capital stock of $40,000 for the purpose of manufacturing brick.

Washington

The Denny-Renton Clay and Coal Company of Seattle, Wash., has been instrumental in bringing a suit against the city of Olympia in the matter of an alley sewer project on the west side. It is asked that no more concrete sewer-pipe be laid, as this has been proved inferior to vitrified clay sewer-pipe. This is the second suit in the same matter.



Westinghouse Motors Driving Auger Machines

Why Motor Drive is Best

No. 2

Westinghouse Individual Motor Drive

has demonstrated to brick manufacturers the value of proper speed for a given machine.

This speed can be maintained continuously which results in increased production.

In brick yards where heavy material is handled, belt slippage results in reduced average speed and increased repair costs.

A card brings Booklet 3072.

W WESTINGHOUSE ELECTRIC

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.
Sales Offices in all Large American Cities

What's a Poor Clay Worker Going to Do?

Price of Coal GOING UP
Price of Labor GOING UP
Good Labor Scarce at Any Price!
Competitors CUTTING PRICES

Have other men met these conditions?
Yes. And many of them are declaring extra dividends today because they

Cut Burning Costs and Produced Better Ware

IMPOSSIBLE!—HOW?

INSTALLed HOOK DOWN-DRAFT KILNS

YOU CAN'T LOSE, for we will guarantee your interest (big enough to look good to you, too) on this investment or will gladly accept a percentage of the saving you make by installing Hook Kilns (money you are losing now) as our pay.

WE LOSE unless YOU WIN. Let us help YOU ADD MONEY TO YOUR BANK ACCOUNT—Money you are paying out now for coal and time—Money that can be gained by improving the quality of your ware.

Begin NOW--TODAY--THIS MINUTE

Don't let the clock tick another penny from YOUR bank account. Just a scratch. We'll Prove Every Claim—probably this is how your competitor cuts his costs. Let us help YOU. Bands, grates and all kinds of kiln accessories.

Hook Patent Kiln Co.
614-615 Commerce Bldg.
Columbus, Ohio

MACHINERY *and* EQUIPMENT

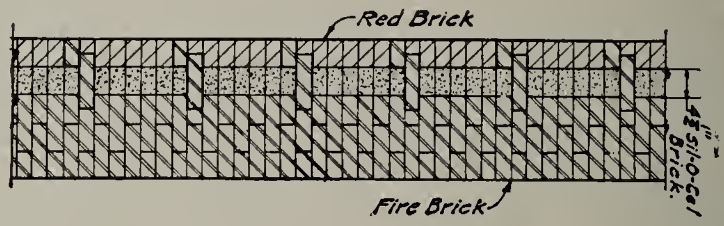
Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Heat Insulation of Kilns

By

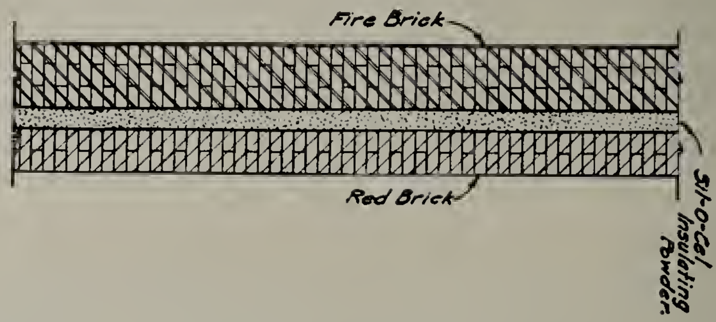
P. A. BOECK, CHEMICAL ENGINEER

The problems of increasing the thermal efficiency of ceramic kilns by preventing heat losses has been the subject of considerable discussion at various times, but little progress has been made in the clay industry in adopting methods of construction practiced in other industries in which this factor has been of primary importance.



Typical Wall Construction Showing Sil-O-Cel Insulating Brick in Wall

In the recent excellent article by Mr. Greaves-Walker, on the Design and Construction of Kilns, (Brick and Clay Record, Sept. 7th, 21st, 1915) the matter of kiln insulation was briefly mentioned and its importance indicated. It is the purpose of this discussion to consider this matter further, indicating methods of construction in which insulation is employed, showing kilns which are operating under high thermal efficiency with a smaller percentage of kiln damaged pieces because of the greater uniformity in temperature incident to proper insulation. This will necessarily include a brief summary of the physical laws governing heat flow and a general consideration of construction and relative conducting capacities of materials used in kiln building.



Typical Wall Construction with Sil-O-Cel Insulating Powder in Hollow Wall

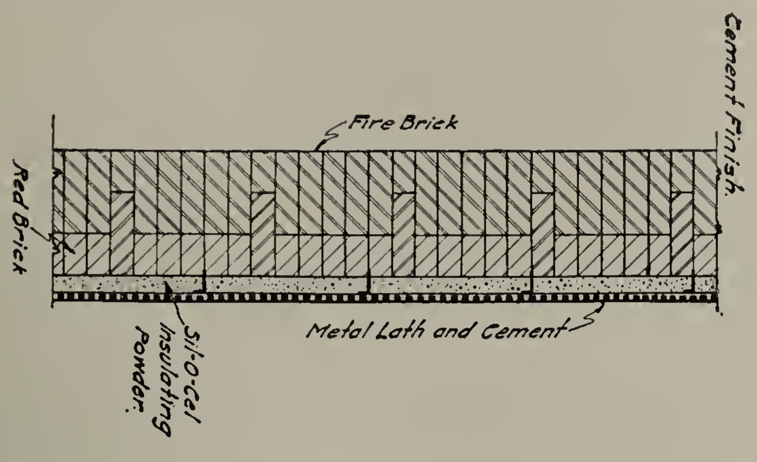
Heat flow is a rather difficult factor to measure under the working conditions of an industrial furnace. It was not until the comparatively recent introduction into certain operations of the heat balance sheet, with a systematic attempt to account for the discrepancies in the totals, that the various causes of heat losses and the reasons for their existence were brought to light. Moreover, such rapid advancement and radical changes in the design of equipment, especially in metallurgical lines, have occured that practice has apparently outdistanced the theory of design. In the modern tendency toward greatly increased size of units, effort has seemingly been made to utilize the heat of fuel gases without proper attention having been paid to conserving heat energy and confining it strictly to the points of maximum activity.

---

*L. B. McMillan: The Heat Insulating Properties of Commercial Steam Pipe Covering, Transactions of the American Society of Mechanical Engineers, 1915.

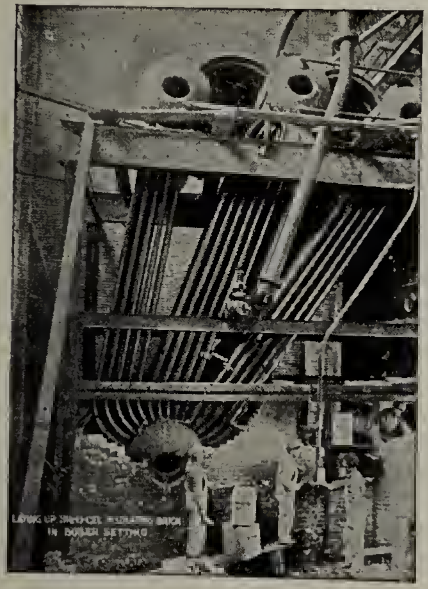
†Kreisinger, Henry and Ray, Walter T.: The Transmission of Heat Into Steam Boilers, bulletin No. 18 U. S. Bureau of Mines (1912).

[3] Convection and Radiation of Heat. Irving Langmuir. Transactions Am. Electro-Chem. Society, Vol. 23, p. 299 (1913) Metall. & Chem. Eng'ing. Vol. 11, p. 278 (May, 1913).



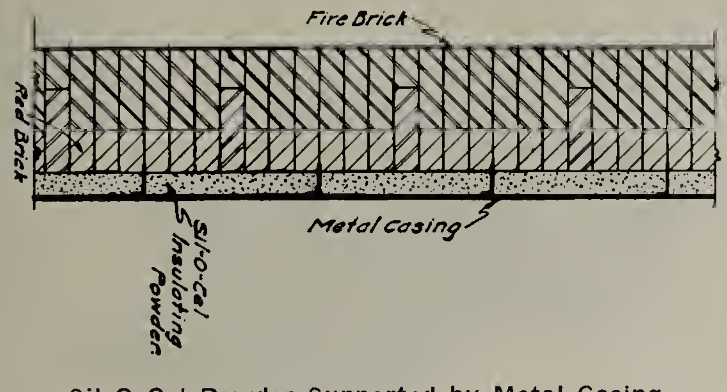
Sil-O-Cel Powder Supported by Metal Lath, Cement Finish

The work of several of the Government Bureaus, notably that of Bureau of Mines and Bureau of Standards, and the systematic investigation of the thermal properties of structural materials by a number of the technical societies, are forming the basis for more intelligent and consistent work in the economically important subject of the prevention of fuel waste. We would refer to the recent excellent paper of L. B. McMillin* before the American Society of Mechanical Engineers. Here the point is made that it is not alone the efficiency of the insulator nor its initial cost, but a factor consisting of both of these items together with the factor of durability or permanence which forms the ultimate criterion of the most effective insulator for any specific purpose.



Steam Boiler

It should be unnecessary in this practical and utilitarian age to call attention to the need of preventing heat losses, but the consistent and intelligent application of insulation to high temperatures has brought out other advantages in addition to the saving in fuel. The most important of these advantages from an industrial point of view, is that of increasing the furnace capacity, it not being uncommon to add as much as 10 to 15 per cent to the furnace capacity without increasing the size of the equipment, the fuel consumption and overhead expense.



Sil-O-Cel Powder Supported by Metal Casing

This is more evident when dealing with higher temperatures considering that no matter how much fuel is consumed to produce a given product, the results are not obtained until the temperature attained is high enough to bring about the

GANDY and Water

"At times during the night the water in our wheel pit rises as much as three feet, thus covering the lower portion of the belt; at such times it is necessary for us to pump the water out of the pit before starting up in the morning, and wipe the belt off with a piece of waste and start up.

This belt has been running for several years and working under the unfavorable conditions it does, we have no fault to find with it."

ORDINARY belting cannot stand up if subjected to the ravages of frequent wetting. Here Gandy differs from ordinary types of belting.

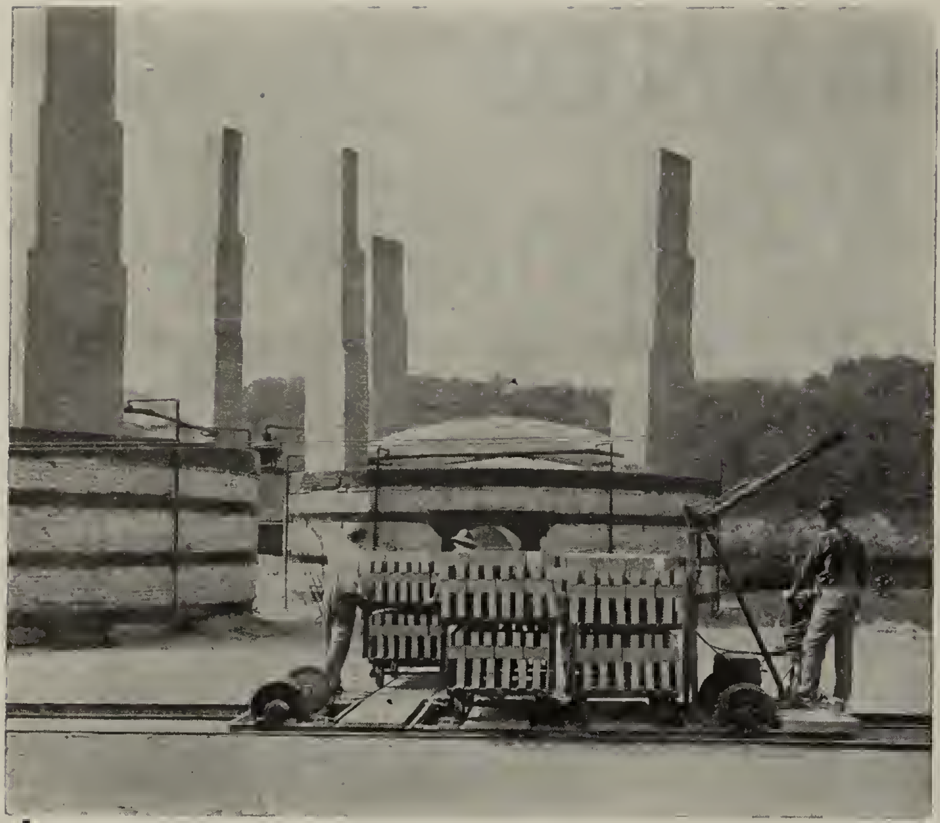
While all users of belts do not experience the "flooded wheel pit" trouble, this immunity to water and the other advantages that Gandy Belts possess in being proof against dust, heat, gas, steam and oil provides a measure of dependability that is invaluable in preventing shut downs when the unusual *does* occur.

Our Service Department which is under the direction of competent engineers, will advise you in an entirely unbiased manner whether or not you can use Gandy with profit.

You will not obligate yourself in the least by describing the belt service you require.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch
36 Warren Street

SAY "I SAW IT IN BRICK AND CLAY RECORD"



Another Clay Plant Economy In The "Lasting Lakewood" Line

These illustrations show one of the

Lakewood Electric Triple Transfer Trucks

at the plant of the Hay Walker Brick Co., Templeton, Pa., also the Lakewood Double Deck Cars.

These Electric Transfer Trucks are made single, double or triple, and are built only to specifications. Our Engineering Department will gladly consult with you as to the kind of transfer best suited to your needs—then we will furnish you just what you should have.

This is the kind of service that has established the "Leadership of Lakewood."

While most of our line is standard equipment, we always consider your interests first—thus our recommendations invariably work out to the advantage of our customers.

Why not try us?

THE LAKEWOOD ENGINEERING CO.
Cleveland, Ohio

reaction. Any increase in the temperature and heat capacity of the equipment above that necessary to get results, produces an increase in output equivalent to many times the actual temperature difference.

In any high-temperature apparatus if the heat can be prevented from being dissipated from the outside of the furnace, the temperature of the furnace is made more uniform and the zone of the reaction and consequently the capacity, are manifestly increased without additional fuel consumption.

Furthermore, overheating at the source of heat in the effort to bring much of the furnace as is possible into the zone of reaction, is materially reduced by preventing the loss thru the furnace walls. This has the ultimate effect of lowering the temperature at the source of heat, greatly increasing the life of the refractories and the capacity of the furnace. It is evident also, that in furnaces which are surrounded by metal casings, deterioration and damage caused by overheating may be many times as great as the cost of installing the proper insulation. The advantages gained by the protection of workmen from unhealthy and insanitary conditions, incident to their laboring under over-heated conditions, are also apparent.

In general then, the question of insulation does not concern itself so much with the saving in fuel, which, of course, is an important item, as with *the general effect produced by confining the heat generated to points of maximum effectiveness.* The higher the cost of fuel, the more necessary it is to look closely to the preventable losses to gain an economically operated furnace.

HEAT FLOW

Inasmuch as the amount of heat conducted by a body is one of the principal sources of loss in high-temperature equipment which we have under consideration, it will be of interest to inquire into this in order that we may control the flow of heat by this method as far as possible. Heat is a form of energy consisting of molecular vibration of a periodic character, and subject to the general laws of wave motion. It can be reflected, refracted and dispersed by creating the proper conditions.

In other words, by the proper mechanical manipulation we can increase or decrease, within certain limits, the amount or rate of heat flow. One of the most common ways of doing this is by introducing alternate layers of materials having different heat-transmitting values, thus breaking up or changing the wave length. The introduction of air cells or voids within the body is a most effective method of accomplishing the reduction of the conductivity. In fact, the apparent density of a body (which indicates the proportion of voids present) may be taken as an approximate criterion of its heat conducting capacity, i. e., the body is made more opaque to the propagation of heat vibration. This, however, is more apparent where the size of the voids are very small and the number great. Large voids have the effect of propagating heat by convection and radiation as will be seen later.

(*To be continued.*)

A Most Wonderful Lubricant

The highest engineering and mechanical authorities agree that graphite is the best existing lubricant, and every man who is familiar with bearing troubles knows its value.

It is, in fact, generally recognized as the true lubricant, but to apply it, and retain it, in the bearings, has presented a difficult problem.

Randall Graphite Lubricator—A Remedy for Bearing Troubles

Scientific and mechanical authorities have invested fortunes and spent years of time and study in an endeavor to blend graphite with metals, but absolutely without success. The problem of utilizing the wonderful lubricating qualities of graphite, however, has been solved, but in an entirely different manner.

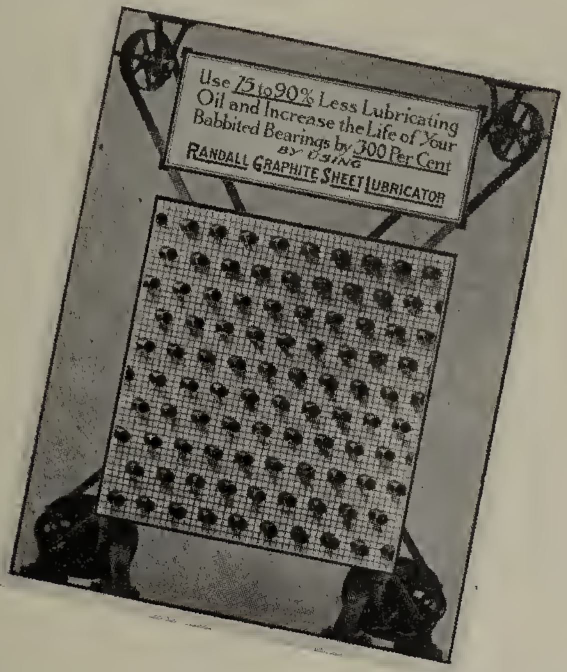
By a simple, patented, mechanical device, graphite is combined with babbitt metal, achieving results far superior to those obtainable with any other method of lubrication.

With this device in the bearings, high speed machines have been run for months at a time without a drop of oil, hot boxes have become unknown, and all bearing troubles have been completely eliminated.

WHAT IT IS

This simple, ingenious device, known as Randall Graphite Sheet Lubricator, consists of a series of solidified graphite cones, slightly tapered and attached by hydraulic pressure to a fine copper wire screen or fabric. The cones are pure graphite.

This lubricator device is applied when the box is babbitted. It is bound with twine or soft copper wire so that the graphite cones are held tight against the shaft or mandrel, and the babbitt metal is poured in the usual way. In this manner the metal flows and sets around the cones, making them a part of the bearing, and thus you have what is practically a self-lubricating bearing, as it only requires 10 to 25 per cent. of the oil or grease otherwise used.



Use 75 to 90% Less Lubricating Oil and Increase the Life of Your Babbitted Bearings by 300 Per Cent by using RANDALL GRAPHITE SHEET LUBRICATOR

Facsimile of the Randall Lubricator Pamphlet

Randall Graphite Lubricator is a positive remedy for all bearing troubles. It is the one and only means by which heating of the bearings can be entirely overcome.

There would seem to be no need to tell clay-products manufacturers of the advantages to be gained by the use of this lubricator in clay plants. It has been used for more than a dozen years in some of the largest brick and tile plants in America, and any of them that have ever started to use it will never willingly do without it again.

One of California's largest plants has been a user of it for a long period, and some time ago its president had this to say:

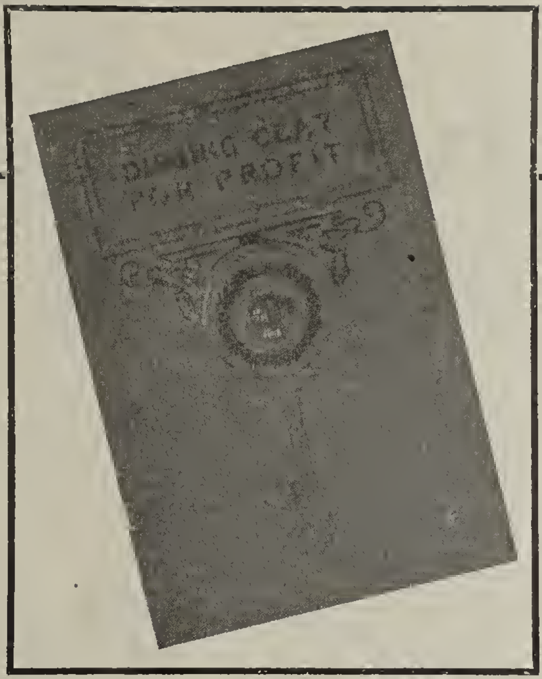
> "We have been using the Randall Graphite Sheet Lubricator in our plant for two years and find it is a great oil saver and does away with hot boxes entirely. We are replacing all brass sleeves that give out with the Graphite Sheet Lubricator and Babbitt Metal."

Every clay plant manager would serve the interest of his company best by finding out about this remarkable lubricator, which is sold under a guarantee of "satisfaction or money refunded." It comes packed one dozen sheets in a box, and each sheet contains 144 square inches. It is manufactured and sold by Randall Graphite Sheet Lubricator Company, 816 West Lake Street, Chicago, Illinois.

The Clay Screen

All manufacturers of ware from screened clay are familiar with the trouble and annoyance attending the use of an inferior screen. Screen troubles are common and numerous.

The parallel wire screen allows the correct mesh clay to fall thru, but it also allows the slivers and long plates



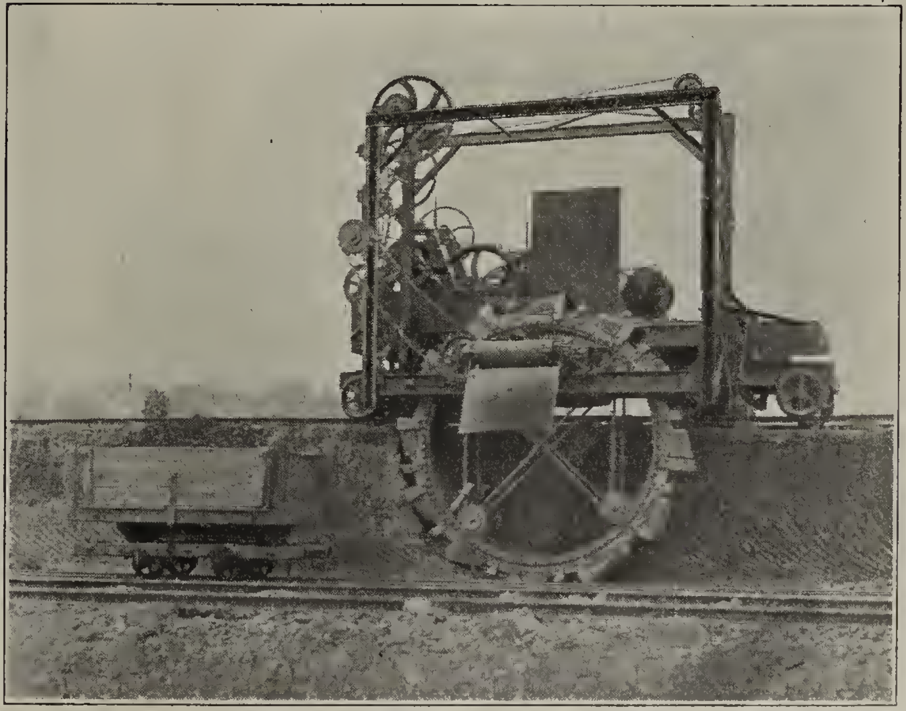
Here's the Book That Will Solve Your Digging Problem

Send for this book—it's free—and learn how some of the most prosperous and progressive clay plant managers have profitted after installing the

Buckeye Clay Digger

It has been in successful operation for a great many years. It's a wonderful mixer as well as digger. It is so simple to operate that any man on the plant can handle it. Electric or gasoline power. If you will let one of our engineers study your problem we'll show you how we can save you money and improve the quality of your product.

The Buckeye
Traction Ditcher Co.
Findlay, Ohio



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

to go thru; this especially is true if the wires become wedged apart in one or more places.

If this happens, or if some of the wires become broken, a constant flow of over size particles goes into the ground clay bin, with resultant trouble in the die and cutter.

Even if the trouble is remedied as soon as discovered, a delay in the grinding and screening departments is necessary while the screen is cleaned or new wires put in place. This delay very often means a delay in the manufacture and consequently reduced output.

If the trouble is not repaired during working hours, the ware is invariably rough, particularly when making smooth face-brick, sewer pipe, conduit, etc. There are many manufacturers today who are making ware that is inferior, and selling for a lower price than a neighboring plant, simply because the clay is screened over a non-dependable machine.

The "Newaygo" clay screen fills the requirements of the exacting superintendent in every single particular. The screen is wonderfully strong, resisting wear and hard knocks; it cleans itself automatically, and it has a very large hourly capacity. It is easily the best screen for all classes of clay plants, where accuracy or quantity or both are required.

There are very many in use already in clay plants; scores have been satisfactorily installed in such plants as the Philadelphia and Boston Face Brick Company, the Ludowici-Celadon Company, The Ashland Fire Brick Company, the American Enameled Brick and Tile Company, the Olive Hill Fire Brick Company, the East Ohio Sewer Pipe Company, the General Refractories Company, and many others of equal repute.

The "Newaygo" is manufactured by the Sturtevant Mill Company of Boston, Mass., and a sample of the letters they have been receiving from buyers of the Newaygo is given below.

Gentlemen: Replying to your favor of the 30th, relative to your Newaygo Separators, would say that thus far we have had very good success with these machines, and at the present time have seven in operation.

We have found them capable of doing their work in our line with very little, if any, repairs, giving entire satisfaction.

Very truly yours, THE EAST OHIO SEWER PIPE COMPANY. (SGD) F. S. Wade.

The Crosby Dryer

A very practical dryer is in operation at the plant of the Duluth Clay Products Company, Tower, Minnesota. The secretary of that company recently had this to say regarding it: "We are now using the Crosby Dryer in six tunnels and have already erected the building for six more tunnels. We have thoroly tried out this dryer and are well satisfied with the results. We have dried our ware bone dry at low operating cost. Our original installation cost very much less than any other system we could have installed, as we have not had to use any stacks, fans, nor fire-boxes. There was very little excavating work, and the elimination of dryer cars is alone a big item. Our ware is conveyed thru the tunnels on large pallets."

The Crosby Dryer Company, of 105 West Monroe Street, Chicago, Illinois, installed this system at Tower, Minnesota. The Crosby Dryer operates by having the ware placed on large racks and carried thru the tunnels by a new conveying system, the ware passing thru a uniform increase of temperature and decrease of humidity from receiving to discharge end of dryer.

The dryer is heated by radiation with ventilation, and the temperature and humidity are under control at all times. This Crosby Dryer is destined to have much popularity in the clay-products industry.

Lincoln Motors

The Lincoln Electric Company of Cleveland, Ohio, has just issued a very attractive and interesting booklet on Lincoln Motors that every clay plant manager will want to read. A full page of photographs is shown illustrating brick and tile plant installations of Lincon Motors.

This booklet also contains several pages of helpful data regarding the economies effected by motor drives, and particuarly Induction Motors on which this company specializes. Two main features appeal with much favor in clay products plants—the fact that Lincoln Motors have waterproof and dust proof insulation. These are explained and illustrated in their new book.

BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Read All About It---

in the *October 17th issue* of *"Brick and Clay Record,"* if you want to get a complete and authentic report of the *Paving-Brick Convention and Road Inspection* at Terre Haute, Ind., and Paris, Ill. Plenty of interesting pictures and a boiled-down, easy-to-read story will make this issue worth preserving for this feature alone, but—

¶ Have you ever been troubled with *lamination?* Would you like to know how some of the most able paving-brick plant superintendents and managers have solved this troublesome problem? All you have to do is to get a copy of the *October 17th issue* in which there will be a "bang-up" article on *LAMINATION.*

¶ "The Scientific Control of the Factory. Part 1. Conditions", will be the subject of the next installment of the Dwight T. Farnham articles. This should be of absorbing interest to every clay plant executive.

¶ "Terra Cotta in Ancient Babylonia," is a story, written by an architect in a good narrative and conversational style, also to appear in next issue—something that will be read with interest by everyone, whether he makes terra cotta or not.

¶ The second half of "The Operation of a Producer-gas-fired Chamber Kiln," by A. F. Greaves-Walker, will be included in the *October 17th issue*, as well as the seventh and eighth tables in connection with "Cost Accounting for the Clay Plant."

¶ The announcement of the winners in the students' ceramic essay contest, conducted by "Brick and Clay Record" during the fore part of the year, has again been delayed. Owing to the lack of space in the current issue, this announcement has been omitted, but will *positively* appear in the October 17th issue. *We have the names of the winners in hand*, together with Prof. Orton's judgment of the papers. *Watch for them in next issue.*

The EDITOR'S CORNER

THERE IS A SPIRIT abroad in the realm of constructional materials, fostered particularly by the more progressive manufacturers and dealers, the heart and essence of which is to the effect that every material should be used where that material is best. Lumber advocates have coined a slogan which, if we remember correctly, reads somewhat as follows: "Wood Where Wood Is Best."

Following this line of reasoning, an article is offered, beginning on the next page of this issue, which proves scientifically and logically that concrete is not the best material to use in the construction of a sewer.

Some will say that this is another "knock" against concrete, emanating from a prejudiced source. This is not true. Facts, and facts alone, have been the determining influence in arriving at the decision which is set forth in the article in question.

Already some engineers, seeking for excuses in behalf of concrete, have said that the Western Avenue sewer in Chicago has been subjected to an unusual test and there is probably no other place in the country where the chemical action is so strong as in this particular sewer.

Investigation, however, proves that there are other points where the action of sewer gases is equally intensive as at the point under discussion. These are carefully listed in the article that appears in the following pages and should not be overlooked by those who seek to make an apology for a material which has been used where it never should have been.

Low-Cost House Plans

HARDLY A WEEK PASSES that we do not receive at least one, and many times three and four inquiries from readers who desire some "ammunition" to combat the cheap frame competition in their local communities.

We reply to these correspondents, giving them what data we have and refer them to sources where they can obtain further information along the lines they desire.

Nearly every request we receive has something to say about comparative costs and plans for brick houses which can be built at very nearly the same price as frame structures of the same size and design. Plans of this character are very scarce, the best among these being those issued by the Society Advocating Fire Elimination, and we have, therefore, been handicapped in supplying our readers with material for a punch.

However, the Minnesota State Art Commission has made a valuable addition to the store of this material, having completed its fourth competition, this time covering low-cost brick and hollow-tile homes which can be built for the sum of $2,500.

We wish to say to those readers whom we have not been able to supply with what they desire along this line and to others who are interested, that plans for homes such as are above mentioned, can be had from the Minnesota State Art Commission, Minneapolis, for a very nominal sum, as these are now being made ready for distribution.

An idea of just how these plans look may be had by referring to an article appearing on another page of this issue which has for its title, "State Aid for Home Builders," by Maurice I. Flagg, director of the commission.

Culvert Pipe Competition

IN THE MIDST of expensive advertising campaigns and extensive promotion in behalf of concrete and iron, county supervisors and others who have in hand the purchase of culvert material, are apt to overlook the humble but everlasting clay pipe which has served many years of usefulness in more than one locality.

Corrugated iron, particularly, has been doing some persistent "boosting" for its use in road culverts with a view toward displacing burned clay. It has always been a mystery to those who are in a position to know, why buyers have insisted upon using metal instead of clay for a purpose where the former, thru the action of the elements and of chemicals, can hardly be expected to stand up for any great period of time. An interesting sidelight on this subject was recently given the writer by one who is interested in the promotion of clay pipe.

He said that, while making a call upon a supervisor in a certain Pennsylvania town, this party absolutely refused to consider clay pipe for culvert use in some proposed road improvements. Not succeeding in making any impression upon this man, who was a farmer, the party in question started back toward the house with the idea of getting into his machine and driving away. However, he encountered the farmer's son at the barn, who gave the clay pipe man some interesting information on his father's prejudiced stand in favor of corrugated iron.

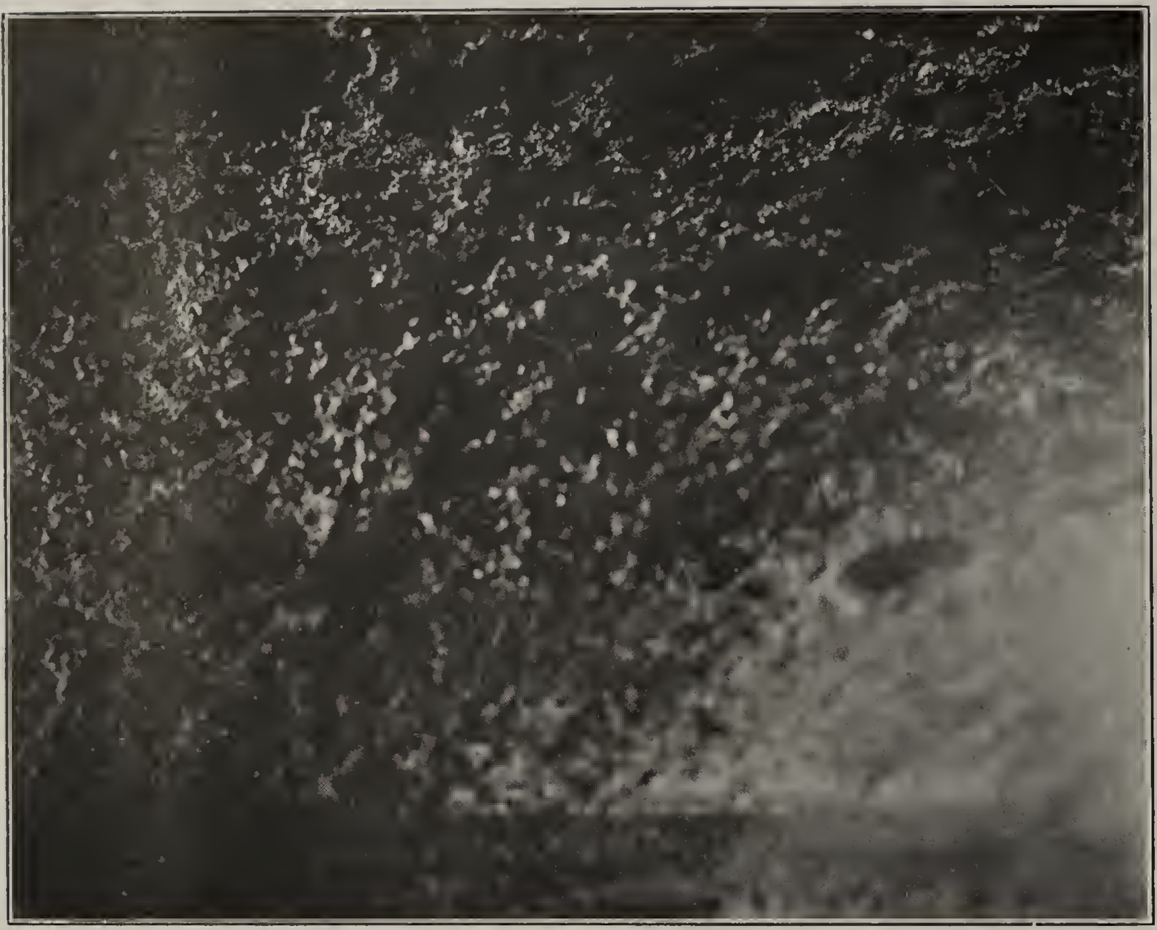
It seems that in this particular community where there were a number of coal mines, the water from these mines contained a great deal of sulphur and it was necessary to replace metal culverts very often. A salesman for a corrugated iron concern advised the supervisor against using iron but, inasmuch as the farmer insisted upon it, he advised him to buy only the best grade. This, however, the supervisor would not do, giving the salesman an order for the poorest grade he had. In answer to the clay pipe man's question as to why his father pursued this course, the boy said:

"The salesman told dad that the iron pipe would not last more than three years. Dad said that his term expired next year and he would let the next fellow worry about it."

In the face of such competition, what can the manufacturer do who has a product of merit but who has to deal with a great many politicians and people in public life who have no greater sense of responsibility than the French king who said: "On with the dance, after us the deluge."

Something to Think About

Have you given much thought to the rapidly decreasing margin between the cost of a frame and a brick house? The steadily rising prices of lumber are robbing your strongest competitor of the best argument he has had in the past. What are you doing about it?



Photograph No. 2. View of Roof in Western Avenue Sewer Taken About One Hundred and Fifty Feet from the Mouth. The Disintegration of the Concrete Due to the Action of Sewer Gas, is Plainly Visible at This Point.

SAFETY *and* ECONOMY DEMAND SEWER-GAS-PROOF MATERIALS

Investigation of Chicago Sewer Proves Concrete Has None of These Qualities, But That Brick Arch and Tile-lined Invert Make Best Combination

By Benjamin Brooks

THIS IS NOT a "Knock" Against Concrete. The Character of the Entire Accompanying Article, Which is the Careful Record of a Thoroly Scientific Investigation Wherein Facts Alone Have been Considered, Would Preclude It from Being Stamped Thus.

On the Other Hand, It Has Taken the Form of Constructive Criticism, Pointing Out the Fault but Applying the Remedy. (See Editorial on Preceding Page.)

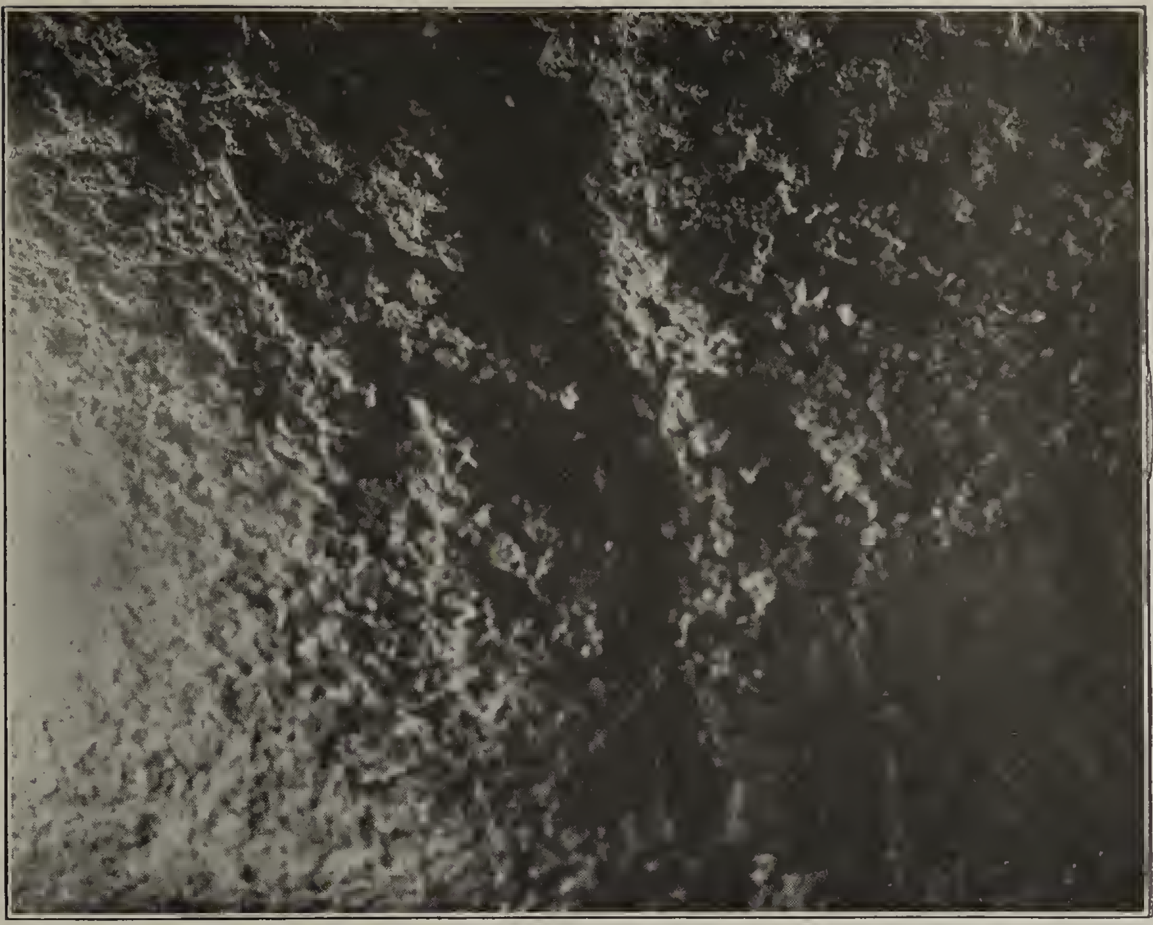
A PARTIAL and so-called "mysterious" destruction of a large concrete sewer in Chicago offers points of interest both to chemical and sanitary engineers.

The sewer under question is about twelve feet in diameter, of the comparatively massive monolithic type, and was built in Western Avenue, Chicago, about seven years ago out of Portland cement, sand and gravel. The point where the destruction has been particularly noted and studied is a stretch of about five hundred feet extending from the mouth of the sewer on the Drainage Canal south to a siphon which dips down under a former canal, now abandoned, and which cuts off further progress by boat.

AUTHOR MADE SEVERAL TRIPS INTO SEWER

The writer was engaged during the latter part of February of this year to investigate and report on the condition of this sewer, and has since made other trips into it with chemists, engineers and editors of engineering magazines who have become interested in the case.

The concrete immediately about the mouth of the sewer is perfectly hard and dense, showing no effects of frost or other deterioration; but upon entering the tunnel, which can best be done by boat since it flows quite constantly about three-quarters full, the roof or arch begins, at a point about



Photograph No. 3. A Portion of the Roof of the Western Avenue Sewer Taken at a Point About Three Hundred Feet from the Mouth. The Decay Noticed in Photograph No. 2 is Considerably More Pronounced Here.

fifteen feet from the mouth, to show patches of whitish crumbly crust easily rubbed off by the hands. But the concrete beneath this crust is perfectly sound; it required four hours for a laborer and myself, working alternately with a hammer and gad, to chop out about a hat full of it for laboratory tests. Photograph No. 1 shows the arch at this point.

DISINTEGRATION APPEARS ONLY ON THE ARCH

Proceeding into the sewer, this incrustation rapidly assumes the character of a complete disintegration of the concrete, but is apparent only down to the water-line. First it appears like fine, moist gray moss about a half an inch long which, under a pocket magnifying glass, shows a distinctly crystalline structure. Further on, this crystalline structure gives way to a surface of loose gravel held in a wet muddy matrix like half-set plaster of paris, pieces of the whole mass falling at the slightest touch. All these changes occur within about one hundred feet of the sewer mouth. From this point on, the concrete of the arch appears to be completely ruined and in some places has fallen away to a depth of four inches, leaving another four inches of loose gravel easily dislodged by thrusts with a jack-knife. Photographs Nos. 2, 3 and 4, altho necessarily out of focus in part on account of the extremely limited space, show in their clear portions the condition of about four hundred feet of the sewer roof. At the same time the concrete in this same part of the sewer, but *below* the normal water-line, is perfectly smooth and hard, as well as could be determined by pounding it with hammers and scraping it with bars.

Photograph No. 1. The Mouth of the Western Avenue (Chicago) Sewer

Since the engineers who had charge of this work recall some difficulty with the contractor who built this sewer in getting him to furnish it according to specifications, the first explanation of this wholesale disintegration of concrete was, naturally, poor workmanship in the beginning. But this hypothesis cannot explain the facts. In all the cases of poor workmanship that the writer has observed, the disintegration, if there is any, occurs first in the invert where the side forms join the invert forms—either this or the sewer collapses mechanically.

POOR MIXTURE DOES NOT EXPLAIN FAILURE

But here there is no mechanical collapse or cracking or disalignment, and the only disintegration is in that part of the sewer which is easiest to build. It cannot be explained by a poor mixture of materials or a mixture of poor materials, because no error of this kind would make all of the lower three-quarters of a concrete tube good and all of the upper one-quarter bad. The disintegration, once started at the point described, is very uniform and complete, not blotchy as in the case of uneven mixtures.

Another theory advanced is that the sewage is unusual in character on account of some acid manufactory tributary to it; but it must be evident that by the time a sewer becomes ten or twelve feet in diameter, its proportionate length assumes that it takes sewage from wide areas of various character. As a matter of fact, chemical analysis of the sewage shows it to be slightly alkaline—only 350 parts per million, expressed in terms of calcium carbonate. In appearance it is the same dirty gray color as any other sewage undiluted by rains, but is rather less offensive than the average.

Another theory advanced by chemists is that the soil surrounding the sewer contains some chemical which leeches thru the concrete and, concentrating by evaporation on the inner surface, acts upon the concrete. But their analyses of soil from excavations for new manholes over the sewer show only about 10.3 per cent. soluble sulphates.

Photograph No. 4. End of the Western Avenue Sewer Where Syphon Begins and Beyond Which Point the Investigator Could Not Proceed

A complete comparative chemical analysis by the Kansas City Testing Laboratory, of the sound concrete and the disintegrated concrete from the tunnel roof throws considerable light on the matter:

Sample	Sound concrete	Decomposing concrete
Moisture	2.13%	4.12%
Loss on Ignition	19.81%	20.21%
Silica (SiO2)	36.38%	30.75%
Iron (Fe2O3)	3.53%	1.32%
Alumina (Al2O3)	9.04%	6.40%
Lime (CaO)	23.36%	17.30%
Magnesia (MgO)	3.38%	3.49%
Sulphur (SO_3)	2.37%	16.62%
	100.00%	100.21%

SULPHUR (SO_3)

In sound concrete	2.37%
In decomposing concrete	16.62%
In 200 mesh material from decomposing concrete	46.30%
In ¼-inch material from decomposing concrete	11.44%

	Sound concrete	Disintegrating concrete
Water soluble	5.12%	28.96%

AN EXPLANATION OF THE TERMS USED

For the benefit of those who do not quite understand the chemical terms contained in the above analyses, the following explanation of what is meant by each item is given:

First, *Moisture*. This is simply the proportion of water by weight which the chemist was able to dry out of the two samples before he started to work on them. Naturally the decomposed concrete had soaked up more water than the sound concrete.

The second item, *Loss on Ignition,* simply means the proportion by weight which can be burned up by heating the samples to a red heat. Here again we should expect that the decomposed concrete, having soaked up more organic matter out of the sewage, should contain more of it to burn away.

The third item, *Silica,* is the chemist's term for the sand and gravel of the harder variety, and there are three reasons why this might appear less in the bad concrete than in the good.

In the first place, the two samples were taken at points one hundred and fifty feet apart, so that a slight variation in the mixture would make a slight variation in this item, but more important than this is the fact that a large quantity of gravel had fallen out of the bad concrete before the writer had an opportunity to sample it. Another thing, down toward the end of the analysis you will find some quantities have been added to the concrete by chemistry. Now, if you had a mixture of ninety per cent. sugar and ten per cent. sand and the grocer doubled the amount of sand, the per cent. of sugar in the new mixture would be only about eighty-two per cent. of the whole. The same may apply to the iron rust and aluminum which appear to have decreased.

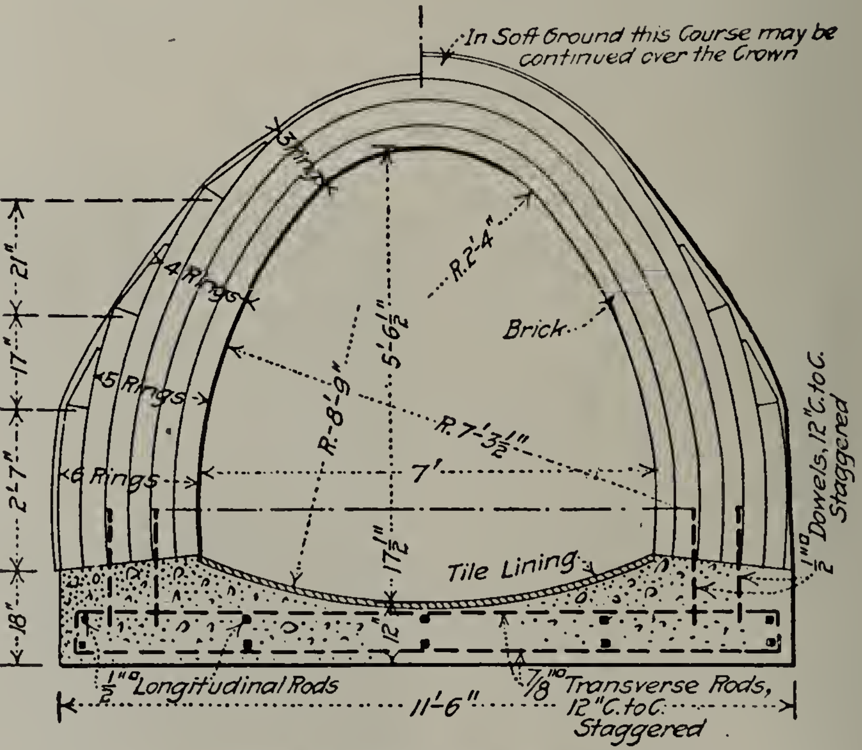
When we come to the lime item, it would naturally be supposed there would be less of this in the disintegrated concrete because, as appears further down on the list, there has been a great addition of sulfates. Calcium sulfate is readily formed by the union of sulphuric acid with lime, so that if this acid has increased, it is naturally to be supposed that it has acted upon the lime. This would not cause the lime to disappear, because it would still show in the chemical analysis, no matter what form it was in; but when we consider that the sewer might occasionally be full, even up to the crown of the arch; when we consider, also, that the sulphate of lime is very soluble in water, it is easy enough to figure that part of it has been washed away by the flowing sewage.

The slight gain in magnesia is most easily explained by the variations which we would expect to occur in even the best and most careful concrete aggregate.

Coming now to the last and most important item of all, the SO_3. It must be understood that this is simply sulfuric acid with water taken out. In other words, the chemist has handled the water separately, altho in the sewer, of course, the water is presumably still with the acid in the form of H_2SO_4. To make this perfectly clear, put the H_2O for water under the SO_3 and add them up to H_2SO_4.

CONCRETE ABSORBS SIX TIMES ORIGINAL SO_3

The first noticeable feature of the above comparison is that the concrete, from some source or other, has absorbed about six times its original content of SO_3. This original 2.37 per cent. of SO_3 is not abnormal when it is remembered that the


In Soft Ground this Course may be continued over the Crown
3 Rings
4 Rings
5 Rings
6 Rings
R. 2'-4"
Brick
5'-6½"
R.-8'-9"
R. 7'-3½"
7'
21"
17"
2'-7"
18"
17½"
12"
Tile Lining
½"⌀ Dowels, 12" C. to C. Staggered
½"⌀ Longitudinal Rods
11'-6"
⅞"⌀ Transverse Rods, 12" C. to C. Staggered

The Remedy. Cross-section of Semi-elliptical Brick Sewer on a Concrete Base, Which Has Been Lined with Vitrified Tile, for Stock Yards Intercepting Sewer, Chicago

"sound" concrete was not entirely free from the whitish crust, a quantity of which was knocked down by heads and shoulders, working in the limited space available and mixed with the sample.

The moisture and organic matter have naturally increased. The percentage of other items has naturally decreased proportionately owing to the large increase in SO_3. Some of the lime, being changed into soluble sulphate, has evidently washed away.

The solution of this disintegration of concrete "mystery" can evidently be found by discovering the source and chemical progress of the excessive amount of sulphur. The most obvious and prolific source of sulphur in connection with a sewer is the hydrogen sulphide and sulphur dioxide which are evolved nautrally from sewage during decomposition. In support of this view the writer finds that parallel cases of decomposition of concrete by sewer gas have been noted as follows:

CASES PARALLEL TO THAT OF WESTERN AVENUE

Outfall sewer in Los Angeles, reported by Homer Hamlin, chief deputy city engineer.

Septic tank at Hampton, England, reported by S. H. Chambers, district surveyor.

Main sewer in El Paso, Texas, reported on by A. C. Pancoast, consulting sanitary engineer.

Septic tank, Soldiers' Home, Sawtelle, Cal., reported by J. H. Dobbings, chief engineer.

Septic tank, University of California, reported by faculty of State Experimental Farm.

Sewer in residence district of Milwaukee, reported by Wm. Bucholz, president board of public works, Kansas City.

Septic tanks at Grinnel and Knoxville, Iowa, reported by Messrs. Barr and Buchanan of the Iowa State College of Agriculture and Mechanical Arts.

Sewers of Berlin, Germany, reported by Rudolph Hering.

In practically all of these cases the investigators agreed that the decomposition of the concrete was brought about by sulphuric acid which immediately attacks the lime in the cement and converts it into soluble calcium sulphate. This sulphate, being much larger than the original lime, disrupts the concrete in forming, just as alkali crystals or repeated freezings sometimes do. Then it gradually dissolves away leaving the aggregate to fall out.

ANALYSIS OF AIR SHOWS ACTIVE GAS

A sample of the atmosphere taken just under the sewer arch and about one hundred and fifty feet from the mouth, by displacing distilled water from a gallon jar, showed 2.45 milligrams of sulphur per liter of air upon analysis by Mariner and Hoskins of Chicago. This is equivalent to 0.17 per cent. by volume in the form of sulphur dioxide or hydrogen sulphide. One part in a million of hydrogen sulphide is enough to me painly evident to the senses, and 0.17 per cent. is sufficient to be very active chemically. In the form of sulphur dioxide it might be even more corrosive.

A SUMMARY OF THE ENTIRE CASE

The case seems then as clear as we could make it without actually seeing the chemical action take place. We have first a concrete sewer acceptable to the city engineers and sound on its exterior against weather and frost action, after seven years' service. Those parts of its interior exposed to sewer gas *and no other parts* are now thoroly disintegrated, and the materials as they now exist could not possible be used structurally so as to hold their own weight while forms were being removed from them. These disintegrated parts contain an excessive amount of sulphur which cannot be found in the other parts. The sulphate crystals apparent to the magnifying glass and the analyses of the chemists indicate that this excessive sulphur has been added chemically. The sewer gases present are the only discovered sources of this sulphur. Other similar investigated cases indicate a similar chemical action. This, then, is not a matter of a blame-worthy builder, nor of mystery, but a plain case of natural chemical action.

MANY CONCRETE SEWERS ARE SIMILARLY AFFECTED

The question next arising is, why are not *all* concrete sewers similarly affected? The writer has observed that many of them are but at a much smaller rate. A study of all the known cases indicates that this chemical action between sulphurous gases and concrete is aggravated by retarding the flow of sewage. The siphon in the Los Angeles sewer and the pumps in the El Paso sewer, for instance, form slight interruptions in its flow. Much trouble with concrete harbor work has been experienced at San Francisco where the rising tide interrupts the free flow of sewage twice daily. The flow in the Western Avenue sewer, Chicago, as in many other large sewers in flat towns, is only about one foot a second. Possibly also the siphon under the old canal is sluggish in action. Any flat town discharging sewage into a body of water not much below its street level may experience trouble of this sort. High temperatures also aggravate this chemical action as it does most chemical actions. Kansas City, noted as a locality of excessive heat, furnishes a case in spite of its steep hills.

THE REMEDY—BRICK ARCH AND TILE-LINED INVERT

The most valuable part of the investigation of the failure of a structure is to learn how to cure it or to prevent others in the future. First of all, it is evident from this case and others cited, that the general practice of lining concrete sewers with vitrified brick or tile *on the invert only,* as in Baltimore, San Francisco and other places, is wrong; and that it is quite necessary to protect the arch as well. It is also evident that in designing sewers the nature of the sewage alone is not enough to consider, for the above analyses show that a mildly alkaline sewage can evolve a gas of very strong acid reaction. This is a point hitherto overlooked by all but a very few engineers. In the writer's judgment it is also wrong to depend entirely upon additional manholes to produce more ventilation in the Western Avenue sewer, as is now being done, owing to the greater specific gravity of the sulphurous gases compared to air. The arch is already so thin that not only can the trolley cars be heard going over it, but also the rasping of the trolley wire is audible thru it. A much safer way would be to uncover the sewer, remove the arch to the water line, and re-construct it with either vitrified brick or vitrified clay segment blocks.

Of course, the same chemical action might, to a limited extent, affect the exposed surfaces of the mortar joints between the brick as in the Los Angeles sewer. Therefore, the inside course of brick should be laid in very thin slush mortar, as in a furnace, with a minimum of jointing material exposed. This method produced a permanent septic tank at

* * *

Canadians Announce Annual Meeting Dates

The next convention of the Canadian National Clay Products Association will be held on Tuesday, Wednes-
Sawtelle, Cal., after two concrete tanks in succession had
day, and Thursday, January 3rd, 4th, and 5th, 1917, at the Royal Connaught Hotel, Hamilton, Ont., according to its secretary-treasurer, Gordon C. Keith.

Thinking that perhaps some have forgotten just who's
been destroyed by sewer gas.

who in this progressive organization, we give below a list of the officers and the present committees:

Past President—Charles A. Millar, Toronto.

President—J. Edward Frid, Hamilton.

First Vice-president—A. F. Greaves-Walker, Toronto.

Second Vice-president—Thos. Kennedy, Swansea.

Third Vice-president, Wm. Burgess, Todmorden.

Secretary-treasurer—Gordon C. Keith, 32 Colbourne St., Toronto.

Councillors—C. B. Lewis, Milton; D. A. Lochrie, Toronto; John S. McCannell, Milton; Ryland New, Hamilton; Herbert Desjardins, Montreal; Albert Neal, Kingston; Walter Clark, Corunna, and T. Graham, Inglewood.

Auditors—C. B. Lewis and Wm. Burgess.

Committee on Technical Education—A. F. Greaves-Walker, chairman; Charles A. Millar, Millard F. Gibson, Joseph Keele, Wm. Burgess, W. McCredie, J. E. Frid and Gordon C. Keith.

Committee on Entertainment—D. A. Lochrie, chairmain; J. E. Frid, C. A. Millar, J. S. McCannell, R. New, Wm. Burgess and Gordon C. Keith.

* * *

"How Did It Happen, Bob?"

To anyone that knows Robert C. Mitchell, general manager of the Farr Brick Company, Cleveland, Ohio, the very mention of his name brings up a sartorial vision—a figure that is the personification of niceness from the top of his well polished shoes to the careful part in his locks.

Bearing this graphic description of the man who invented "Buy Farr the Best" carefully in mind, imagine the shock to denizens of the "Sixth City" when this same individual stepped forth into the public gaze one day early in September, badly mutilated to all outward appearances, with heavy wrappings of bandages covering a large portion of the usually visible surface. It is needless to record that "Bob" Mitchell was immediately surrounded by what seemed to be about half of the town, all of whom demanded an explanation of "how the other fellow looked, and how it all happened."

With a less notable personage, such an incident would have meant but little—he might have related his sad story and passed on, without losing any part of his regular eight hours of slumber.

Not so with "Bob." Feeling faint at so persistent an attack of inquiries, he burned the midnight oil studying out a plan whereby he could satisfy his solicitous friends and still "tend to business."

After sitting up half the night, he finally hit upon a plan that would have done credit to Mark Twain in his palmiest days. The next day he proceeded to put his little idea into execution with the result that when he stepped into the lobby of Cleveland's best-known hotel he was able to get across the floor and out of the door in record time, leaving inquisitive friends busily pouring over a sheet of paper about letter size upon which appeared the following:

"It happened last Labor Day, September 4th, at West 96th street and Detroit avenue, at 4:30 in the afternoon. On this particular day the street to the south of the tracks was torn up preparatory to paving. I was driving east alone in my car, and immediately ahead of me, going in the same direction, was a Ford automobile containing a man, lady and three children. I signaled him, and he immediately took to the right of the road, I in turn, speeding up intending to pass him. Without a warning of any kind, the Ford driver returned to the left of the road. I then had the alternative of striking his machine and endangering the lives of his children, or steering my car onto the torn up road. I chose the latter, which resulted in my machine being thrown against a telegraph post, completely wrecking same. The only personal damage done was to myself and only to the extent that you have seen.

"I have been called upon so many times to tell how it happened that I have concluded this method would prove a great relief."

Two hundred copies of the above were struck off and handed out to those interested in knowing "how it happened."

* * *

S. A. F. E. Holds Annual "Fun-fest"

The annual fun-fest of the Society Advocating Fire Elimination was held at the East Shore Country Club, Cleveland, Ohio, September 23. Special attention was given by the committee in planning events that were appreciated by the ladies. About one hundred persons in all attended, virtually all being Cleveland members.

The festivities started with a ride in automobiles to the club, where a genuine New England Shore Dinner was waiting for the guests. Then there was tennis, dancing, baseball and swimming.

A feature of the feats was a cabaret by "our own members." This included Ernest Roberts of the Kelly Island Lime and Transportation Company; William Dougan of the Cleveland Builders' Supply Company; Irving Geist of the Geist Building Material Company; Louis Powell of the Bostick Metal Lath Company, and several other brilliant stars.

Prizes for the winners in the different field events were awarded.

Observe Fire Prevention Day October 9

"STANDARDIZING" FACE-BRICK

In Which Some Useless Material Is Thrown Out and a New Thought Injected, to Make a Simpler Process of Arriving at a Sale

By Frederick W. Donahoe

IF LUTHER BURBANK had been a brickmaker, instead of a horticulturist, he might have applied his talent for grafting in a manner that would have produced results almost as wonderful as his spineless cactus or thornless blackberry. He could have taken, for instance, some very useless—or misused—words commonly used in the brickmaking industry, and by cutting out and tying together, made something altogether useful.

If his lot had been cast, for instance, in a face-brick plant, or in the office of a face-brick dealer, he would have given some attention to the words that are used to describe (?) certain sizes of brick—and some very uncertain qualities. For instance—"standard" and "first" and "second."

The word "standard" as it is commonly used, means little or nothing, except, perhaps, that the brick is *not* "Roman" nor "Norman." It may have some allusion to shape—the same as the word "brick" may mean something that is *about* twice as long as it is wide, and a little more than half as high as it is wide. And, altho the National Brick Manufacturers' Association has adopted a certain measurement as standard for "face" or "front" brick, the samples sent any architect on a given job are as different in measurement as they are in color.

DEFINING "FIRST QUALITY"

When it comes to calling a face-brick a "first"—well, that depends altogether upon the man who is doing the calling. There was a day, in the dim and distant past, before rough-cut face-brick became a—or the—vogue, that the mechanical perfection of a brick was considered a sign of quality, and architects were in fair accord with yard superintendents and brick sorters on the question of what constituted a "first" and what condemned a brick to the "second" limbo.

But when the cutting wire jumped from the table to the mouth of the brick machine, and then, later, was supplanted by the nails, knitting-needles, brushes and what-not that were called to the task of scoring, dragging, cutting and slashing the "skin" off the clay column, the sharp, square edges, the perfect heads, the absence of warping—all of these ceased to exist and, being dead, ceased to have any effect upon the minds of the men who were buying—or selling—quality.

With that vogue for rough-cut face-brick came, as well, the total demolition of other points that had been used as milestones on the path of quality. The use of the reducing fire brought the light heart—another way of saying that the edges of the face of the brick were different in color from the center of the face—and kiln marks (a sure indication of poor quality in the past) were shown as added beauties in the product.

Nor is this the case only with rough-cut brick; the smooth faced "pavers"—why so called no one knows, since they are used almost exclusively for face work—are flashed and skintled and kiln-marked to a fare-you-well.

The old tests for absorption are seldom used, the rough-cut surfaces of many well made face-brick being as ready to "take water" as their beds are reluctant to take mortar.

So when it comes to calling a face-brick a "first quality" brick it depends, as we have said, upon the man who is doing the calling. It means something to him, but that something is, nine cases out of ten, something entirely different from what it means to the man who is listening to him.

APPLYING THE BURBANK PROCESS

With but few exceptions, the output of ninety-nine out of a hundred face-brick plants is the so-called standard brick—that is, it is neither "Roman" nor "Norman." Why not, then, eliminate the word "standard" as applying to size and shape, and put the word to work where it will mean something?

At the same time, why not discard the word "first" altogether?

You then have a new growth in the nomenclature of face-brick—"standard quality."

WHO MAKES "STANDARD QUALITY"

The question naturally arises: "Who will set the 'standard' in 'standard quality'?" And the answer is a little unusual in the face-brick business, which has had its "standards" of almost everything set by the consumer—it will be the manufacturer. The man who makes the brick, who understands the "stuff" there is *in* the brick—its possibilities of making his yard a financial success or a flat failure—will say, with considerable emphasis, that this brick, made by him, sorted by him, served by him, *is his standard.* Anything that does not come up to that standard is sub-grade, so far as he is concerned.

He knows what his plant can most economically produce; what percentage of lights and darks and intermediates. He knows to what uniformity of size and shape the greater part of his product runs. He knows just where to stop sorting for greater uniformity, either on color, or size or contour. He determines to serve his output along those lines, and is ready to stand or fall by the way the public accepts his standardization.

If he be progressive, he will cause his standardization rule to be printed. His yard men, his sorters, his salesmen—he, himself—will know that "standard quality" means just one thing.

If closer sorting, or better grading is asked for by a buyer, that will constitute super-grade or better than standard. It will mean the setting of a higher price for a higher service. If he sells his output, or any great part of it thru dealers, they will be supplied with his printed standardization and they, in turn, will inject his standardization into the veins of the buying market—it will be, as they say in the law-courts, a "meeting of minds."

The architect will write his specification somewhat differently from the way he is today writing (or dictating—the latter in more ways than one—) and say:

"All exposed walls shall be faced with the John Doe Brick Company's standard quality face-brick, shade 900." If he wants "Roman" or "Norman" size, he will add, "In the

Roman (or Norman) shape." *Standard will mean something.*

The alert seller of face-brick will turn the question "Are they first quality?" by asking, "What do you mean by 'first quality'?" And he will substitute a guarantee of quality and service, written by a man who knows what he can do, as well as what he proposes to do.

The question "Will these go as 'firsts'?" will no longer be heard amid the screeching of the barrows and the clang of the sorters' hammers. The men on the yard will know if the brick they are handling is up to standard—the standard of the yard. They will not have to speculate on the unreasonable activity of the architect's superintendent, nor the untrained eye of the man who builds once in a lifetime.

The dealer, laying "panels" in his display room, will not pick and choose, in order that his customer may think he is buying something better than he will get from the car. He will ask for, and receive "standard quality" brick—standard service, as that service will be, unless the plant "falls down" and, like a man who cheats himself playing solitaire, trys to "put something over" in order to cover up an accident, or a bad coal purchase, or a leaky kiln.

Incidentally, it turns the searchlight away from the question as to whether one brick is "better" than another, and places the truthtelling ray on the much nearer home proposition—the elimination of misunderstanding and the willingness of a great industry to give its patrons value for the dollars they intrust to it.

MONMOUTH (N. J.) ASSOCIATION HOLDS FIRST FALL MEETING

Members of the Monmouth Manufacturers' Association met at Keyport, N. J., on September 7th, this being the first session for the fall and winter season. President J. H. Fritzinger, who appears in the accompanying illustration and who is connected with the National Fire Proofing Company at Lorrillards and Perth Amboy, N. J., presided.

The transportation committee reported that several matters needing adjustment had been referred to the New Jersey and Long Branch Railroad and that this company had stated all complaints will be investigated. A conference will be arranged shortly with the New York and New Jersey Steamboat Company to ascertain what improvements can be effected with a view toward making its service more of a competitor with the railroad company above mentioned.

J. H. FRITZINGER
President, Monmouth Manufacturers' Association

The membership committee reported an increased interest among clay and other manufacturers who are not as yet members. Three new applications for membership have been received.

Secretary C. E. Eatrous was directed to file a protest with the county authorities against the intolerable delay in repairing local county roads. Great difficulty is being experienced in getting to and from the different clay plants, the roads being in very bad shape.

The next meeting of the association will be held in Matawan on October 14th, at which time many important matters are to be discussed. Under the able leadership of Mr. Fritzinger, the clayworkers in this section of the Raritan river district have formed an organization that is becoming a powerful factor in New Jersey manufacturing circles.

* * *

Pottery Employes Enjoy Seashore Outing

Heads of the departments and members of the office force of the Monument Pottery Company recently enjoyed an outing at Manasquan, N. J. The trip from Trenton was made in automobiles. Water sports were enjoyed as well as a baseball game between the married and single men, the former winning by a score of 4 to 2. Those who took part in this outing were: Messrs. Geo. E. Hoffman, Fred A. Goeke, Herman Bastian, Richard J. Goeke, John Bethe, Albert Gore, Gordon, Galvin, J. M. Krieger, Eddy Reiman, Eddy Martino, Harold Mahan, Henry Noble, Geo. W. Goeke, Russell Jamieson, Stanley Conover, George Mycock, Louis Poli, Jean Chianese, W. Stanford, Otto Weiss, Thos. Scott, and William Brown.

* * *

Ohio "Pavers" to Take Over Michigan

The Ohio Paving Brick Manufacturers' Association, which has headquarters in the Hartman building, Columbus, is preparing to include the state of Michigan in its scope of activities. James R. Marker, the commissioner of the organization, has just returned from a two weeks' trip thru Michigan, reporting a bright outlook for paving-brick. Michigan is the natural market for Ohio manufacturers, with the exception of a small corner, which receives its supply from Illinois factories. Two engineers, working under Commissioner Marker, have been placed in the state to advise contractors, county and city officials concerning the best methods to be followed in building brick pavements and roads.

* * *

Work Progressing on New B. M. Hood Plant

Floor and sidewalk tile will be specialties of Hood's Pottery Clay Products Company, which has been organized to build a plant at Daisy, Tenn. B. Mifflin Hood, of Atlanta, is president and Charles L. Krager, of Daisy, is vice-president and manager. The construction of the plant is going forward steadily, the machinery having already been provided for. Walter and Chase of Atlanta have prepared the plans. The structures being erected

WHAT SCIENTIFIC MANAGEMENT ACCOMPLISHES *for the* EMPLOYER *and the* EMPLOYE

Continued from the September 19th Issue. In This Installment Is Devoted Considerable Space to Analytical Time Study and the Bonus Reward

By Dwight T. Farnham

BEFORE it can be determined just how much work each man should do, it is necessary to make it possible for him to do his best. A workman whose tools are inadequate, whose machine is continually breaking down or being shut down for lack of power, or who, every little while, has to wait for material, is not in a position to let himself out, even if he desired to make a record.

Furthermore, under the ordinary systems of payment the workman does not particularly care whether his work is interrupted or not. It is much easier to sit down and wait while the machine is repaired by someone else or to "assist" the regular repair crew than it is to work. A case in point was that of a press feeder—a boy of no great sense of responsibility who, when his job got monotonous, used to drop a bolt into the feed-chute. As a result the press would be shut down fifteen or twenty minutes while the die was removed and the bolt taken out. Meantime, the boy had a rest, enjoying the change in the activity of those about him and, incidentally, the picturesque language of the foreman. It took nearly a month to place the blame in this particular instance and, during that time, several thousand dollars output was lost which, reckoned in lost profits, or even in wages spent for useless work, amounted to considerable. *If the company had made it to that boy's financial interest to do his part in insuring the continuous operation of that press, this loss would have been avoided, beyond a doubt.*

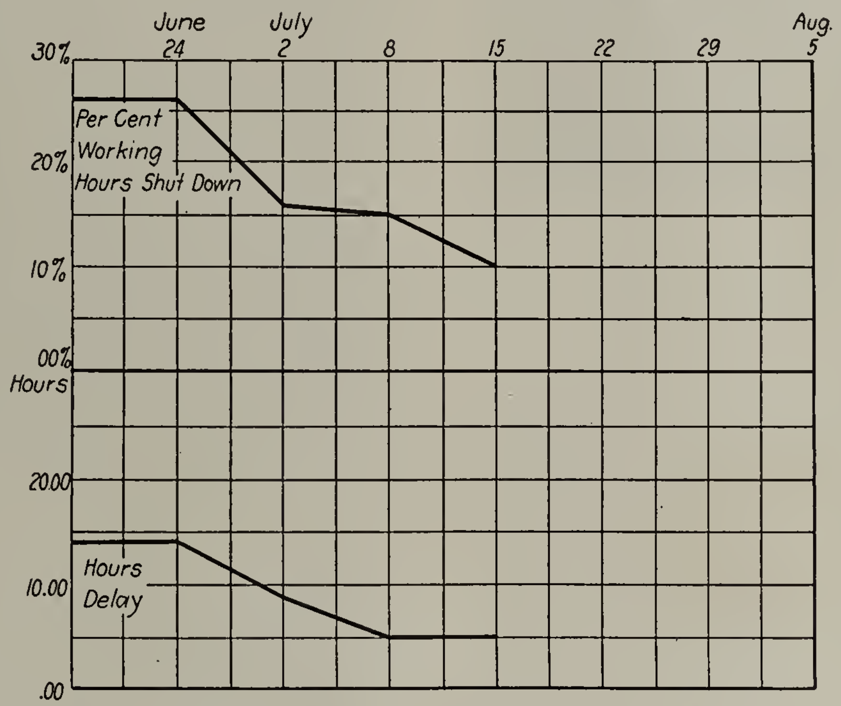


Chart 1. Showing Reduction in Delays Effected in the Machine Room of a Large Brick Plant by Standardization and by Placing the Crew on a Bonus

No matter how great a workman's sense of responsibility, he reaches the "O what's the use?" stage very quickly where interruptions are frequent. Why should he try to break the record when just at the height of the race something over which he has no control—some belt or some steam connection—breaks and nullifies his whole effort. Anyway you look at it, breakdowns are discouraging and, unless you give the workman a chance by reducing interruptions to a minimum (a bonus to the repair crew is pretty good insurance), you cannot expect him to do his best.

HOW ATTENTION TO DETAILS REDUCED DELAYS

Chart I furnishes an example of the reduction in delays brought about by attention to machine details and by placing the crews on bonus in a large brick plant. At the time the record was instituted about a month's standardization had been done. It will be noted that during the subsequent four weeks the reduction in delays was continuous and that the shutdowns decreased over sixty per cent.—from fourteen hours a week to less than five.

In addition to the elimination of delays there is a large field for the competent engineer in the improvement of tools and equipment. In many cases, study of the workman's accessories discloses the fact that the implements handed down for generations and stamped with approval by "experience" are totally unfitted for the work which they are expected to do. There is certainly no more venerable and ancient trade than bricklaying and yet Gilbreth, by the use of the fountain trowel and by making a scientific study of the workmen's motions, *eliminated two-thirds of the motions as unnecessary, cut the work two-thirds and enabled union men to average three hundred and fifty brick per hour instead of one hundred and twenty.*

The work must be studied from the purely analytical viewpoint, freed for the moment from the blinders of tradition, until every obstruction which may prevent the worker performing his task in the easiest, the quickest and the best way is removed. *Under no other circumstances have you a right to expect your men to do their utmost.*

THE ANALYTICAL TIME STUDY

After the machines, the tools, the delivery of material and the removal of the finished product have been standardized, in other words, after you have given the workman a fair chance, you must teach him to use what he has to the best advantage and to do his work in the best way—the easiest way for him and the one which will result in the largest dividends for the stockholders of the company.

Scene in the Oil House of the Ordinary Plant. Note Condition of Drip Pan and Pool of Oil on the Floor

Since one man was set over another, to see that he labored conscientiously and well, motion study has been going on. You are all familiar with the story of the Irish section boss who so far forgot himself at a funeral as to order two of the pallbearers to "lave that coffin be and come over here—four of yez is enough to carry it," and with the tale of that other son of Erin who, on calling down into the excavation and finding that three men were digging there, bellowed down the order for "half of yez to cum up out o' that!"

It may be a far cry from the instinctive sizing up of the right number of men to handle a job by the Irish boss to the highly technical motion study of the expert made with the cinematigraphic camera and the stop watch. The principle, however, is the same and consists in the solution of the question: How can this man best do the work, with the least wear and tear on himself, with the least waste of material and with the least expenditure of time, so that the final result will be the finest possible product at the least possible cost?

An explanation of just how to make a motion study is just about as easy to formulate, and about as easy to understand, as an explanation by an artist of just how to paint a picture would be to one who had never seen a painting. There are numerous articles, and even whole books on the subject, but the analytical time study is a thing that must be done to be understood. Furthermore, there is no limit to skill which may be developed or to the results which may be attained any more than there is in sculpture or in painting. The conscientious man, not over-equipped with imagination, ingenuity and inventiveness, may learn to handle a stop watch skillfully and obtain satisfactory results—the genius will revolutionize an industry.

A BRIEF EXPLANATION OF MOTION STUDY

Briefly, the process consists in timing every motion of the workman with a stop watch arranged to register the hundredths of a minute, and of recording these motions. The problem is then studied analytically, the useless motions are eliminated and the worker is taught to secure the desired result with the fewest possible movements. In the course of this work new devices are often introduced and new processes invented. A time study may take fifteen minutes—or fifteen days—depending upon the intricacy of the process and the economies which are likely to result from the solution of certain problems.

We have seen what was accomplished in bricklaying. The man who did that work wrote a book describing just how the studies were made. Some time the writer may attempt to explain the methods of making time studies in a clay plant, but such an explanation would be too long and too complicated for an article of this sort. The general rule is, find out how long each class of work is taking by dividing it into its elements. Record the time of each element.

A Standardized Oil House. In Excavating for the New Floor, Several Barrels of Oil Oozed Out of the Surrounding Soil, Which, Owing to a Long Continued State of the Conditions Shown In the Preceding Picture, Had Become Thoroly Saturated. Hundreds of Dollars Gone to Waste

These "Wheelers" Are Not on a Bonus. At the Time the Picture Was Taken, the Kiln Was Two-thirds Filled with Brick, Customers Were Clamoring for Early Shipment and the Room in the Kiln Was Needed to Operate the Plant at Full Capacity. Yet These Seven Men Working Under the Piece-rate System Felt They Had Time for a "Tea Party"

Classify the elements into necessary and unnecessary movements. Eliminate the unnecessary. Improve the process as your knowledge and ingenuity and the knowledge, ingenuity and experience of those who are familiar with the work, suggests. Reduce the final decision as to the best way to do the work, to writing. Show the workmen how to follow these instructions, and make it worth their while to follow them to the letter.

Until you have done this, you will never know how much useless work is going on about the plant, how much the men are handicapped in their work and how much more work can be done with less fatigue to the worker and with increased profit to the firm.

THE BONUS REWARD

Inasmuch as you are going to expect the workman to learn new methods and to follow instructions to the letter, you must reward him for his trouble and pay him in proportion to his effort and accomplishment, both as to the quantity and quality of his work. There are numerous systems of paying a bonus, all of which have their good points. The important thing to do, however, is to select the system which exactly fits the situation in question. Labor differs in various sections of the country and a system which would incite one type of workman to do his best might not interest another at all. The local labor situation must be studied and a plan selected which will strike the employe as fair and which will induce him to do his best to attain the standard set.

As an example of a practical and widely used bonus system, the Emerson system may be cited. This pays the workman according to his degree of attainment of the standard set according to the following formula and table:

$$\frac{\text{Standard Hours}}{\text{Actual Hours}} = \text{Efficiency.}$$

TABLE

Per Cent. Efficiency	Bonus	Per Cent. Efficiency	Bonus
67	.005	91	.11
73	.01	92	.12
76	.02	93	.13
79	.03	94	.14
82	.04	95	.15
84	.05	96	.16
86	.06	97	.17
87	.07	98	.18
88	.08	99	.19
89	.09	100	.20
90	.10		

Under this system then, if a certain operation, such as drawing a kiln of brick, was standardized at eight hours and the crew drew it in nine hours the formula would be filled in as follows:

$$\frac{\text{8 Hours—Standard}}{\text{9 Hours— Actual}} = \text{88 per cent. Efficient.}$$

and the members of the drawing crew would each receive .08 or eight per cent. of their wages as a bonus for doing the work in the above mentioned time, in addition to their regular pay.

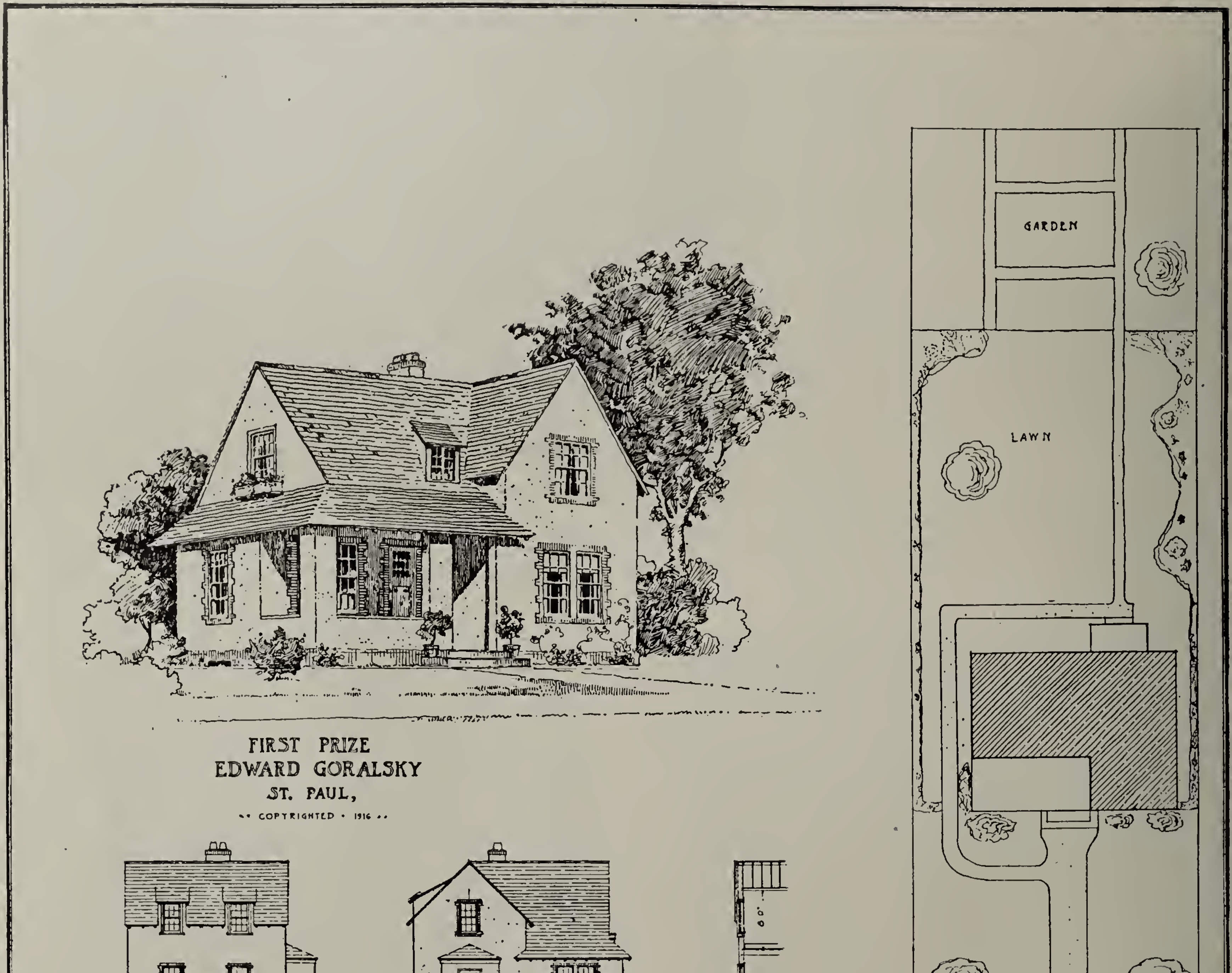
In some cases it is desirable to arrange the bonus to discourage absences, and so forth, as well as to reward for the accomplishment of a standard quantity and quality of work in a given time. Details must be varied to suit conditions, but the principle remains the same, namely: *Reward in exact proportion to accomplishment, so that the workman is benefited in dollars whenever he increases the firm's return on its investment.* The principle is as applicable to gang work as to the individual workman, as the following tabulation shows, which gives the attainment of various crews secured in a recent installation of the system approximately five months after the standards were set:

Crews	Per Cent Efficiency	Annual Economy
Press	92.5	$ 5,950.00
Setting	105.0	5,000.00
Drawing	92.0	2,000.00
Shipping	117.0	12,650.00

To summarize, the manufacturer who is progressive, who has faith, who is prepared to give his employes a square deal and who can convince them of that fact, is in a position to benefit his employes, to advance himself and to increase the dividends of his stockholders. Labor troubles can be reduced, guess work eliminated and management reduced to an exact science. All this requires patience and application but the results are far reaching and are well worthy of attainment.

LOUISVILLE POET BUILDS HOLLOW-TILE GARAGE

Among the building permits issued in Louisville during the past fortnight was one noting that Cale Young Rice, 1444 St. James Court, was authorized to erect a one-story tile garage at his home—Loomis and Hartman, architects—to cost $400. O. M. Ryser is the contractor. The fact that Mr. Rice, who is a poet of worldwide renown, author of "A Night in Avignon" and other poetic works of a high order and, incidentally, husband of Alice Hegan Rice, who wrote "Mrs. Wiggs of the Cabbage Patch," is sufficienty discriminating to select an ideal garage building material is not surprising. Many thoughtful men have done the same thing after careful consideration. And it is not unusual that one of the leading firms of architects in the city should be selected to design a garage to occupy a location near a beautiful brick home.



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The Plan That Won the First Prize in the Competition for a $2,500 House of Brick or Hollow-tile, Conducted by the Minnesota State Art Commission. The House Shown in the Above Design is Intended to be Built of Tile, the Architect Being Edward Goralsky of St. Paul, Who Was Awarded $200 for His Success

STATE AID *for* HOME BUILDERS

The Story of a New and Radical Service Undertaken by a State Art Commission to Supply Home Building Assistance for People with Modest Incomes

By Maurice Irwin Flagg

THIS IS A STORY of how Minnesota helps the small home builder. It tells of a service that stands unparalleled in the history of home building. It is the first program of the kind undertaken by any American state government, and is all the more remarkable because it was planned and put into practice by an art commission.

Minnesota unhesitatingly furnishes agricultural assistance to the farmer. The state teaches him how to grow three crops of alfalfa, how to prevent hog cholera, how to diversify land culture, and a hundred other things, all of which assist him in securing from the soil the greatest possible return in "dollars and cents." The conservation of agricultural resources is the slogan sung by nearly everyone in the great Northwest.

PEOPLE ARE STATE'S GREATEST RESOURCE

It seems altogether reasonable, sane, imperative and good business that a state government should assist in conserving its greatest resource—the people. Better homes, better people, better products, more efficiency, more business, more returns from the native resources in the end—all because of efficiency plus beauty in home building.

This is the sequence of reasoning that stimulated the Minnesota state art commission to furnish people authentic, professional and specific help in small home building. The state art commission of Minnesota began such a program three years ago with the idea in mind that it would supply farmers and farmers' wives in Minnesota with plans for modest model farm houses. These farm houses were intended to be useful and at the same time express a certain amount of charm and beauty, which is, for the most part, lacking in the average small home in both rural and urban localities. The commission instituted a model farm house competition and appealed directly to the Minnesota Chapter of the American Institute of Architects for endorsement. The result of the competition was twenty-seven admirable plans for model farm homes (of frame construction). In a period of three years over a million plans have been sent from the offices of the commission. These have gone to farmers living in all sections of the world, but more especially to the farmers of the Northwest.

The demand for these plans grew to such proportions that the commission instituted other competitions, the second, a model farm yard and a third for a model village house (also of wood) to cost $3,000.

DEMAND FOR FIRE-SAFE HOMES RECOGNIZED

When one stops to consider that the average village house lacks the very thing—"good looks"—which might make it an asset to a community, one begins to realize that the help the small home builder needs is architectural service. With this in mind, the commission instituted a fourth competition for a model brick or hollow-tile house to cost $2,500. This was designed to meet the needs of people asking for plans of houses to be built of fire-resisting materials. The demand for this type of house had been apparent for some time so the commission appealed directly to the brick and clay products industry. F. B. Martin, manager of the Twin City Brick Company's Minneapolis office, then president of the Northwestern Clay Association, was one of the prime movers and supporters of the enterprise. Thru his enthusiastic and persistent work other interests were brought into the competition. The bricklayers' and stonemasons' unions and manufacturers of fire-resisting materials said to the state art commission, "We are with you to the finish in this great campaign and, if we can contribute our share towards making homes permanent, attractive and efficient, then you can call it art or anything else, but it is good business any way you put it."

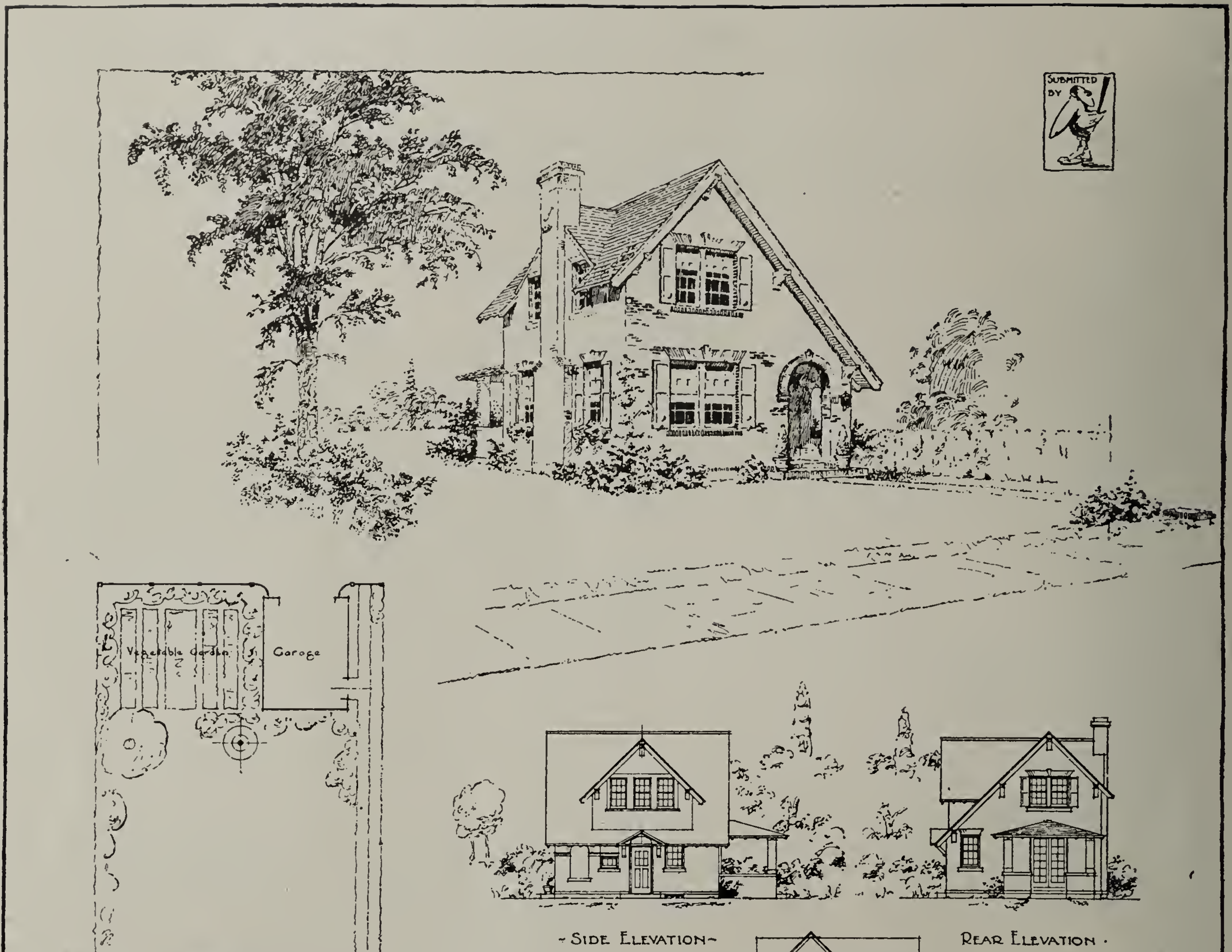
A sum of money was contributed, six hundred and fifty dollars in cash prizes being offered. A competition was drawn up by the Committee on Competitions—the Minnesota Chapter of the American Institute of Architects—and open to Minnesota architectural designers only. Thirty attractive and practical plans of houses were submitted. The commission asked a jury to pass upon the plans. William H. Schuchardt, F. A. I. A., an architect of Milwaukee, B. W. Day, A. I. A., an architect of St. Paul, Maurice Schumacher, a Minneapolis contractor, Miss Josephine Berry, professor of the Home Economics Department, College of Agriculture, University of Minnesota, and A. C. Ochs, a brick manufacturer of Springfield, Minn., comprised the jury. The awards were made and the plans are now being made ready for distribution, a few of which are printed in this issue of "Brick and Clay Record."

COMMISSION NOT SEEKING TO DISPLACE ARCHITECT

The purpose of this competition, as well as others, has not been to enter the field of architecture in the sense of rendering service which would in any way trespass upon the field of the architect. It is planned to serve the small home builder who has a limited amount of money to spend and who, because of obvious reasons, does not usually employ the services of an architect.

The commission proposes to publish the plans in folio form. It is also printing them each month in the official magazine of the Minnesota State Art Commission—"The Minnesotan." In addition to this, it has established an architectural and allied arts service which furnishes prospective home builders authentic and helpful advice by the Committee on Public Information—the American Institute of Architects (the Minnesota Chapter).

The plans for the model houses along with this service are working wonders for the small home builder in Minnesota. It is also reaching people in many other states. It has been the means of stimulating other states



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The Second Prize Design in the Minnesota State Art Commission's Competition, Submitted by R. Harrison Haslund, an Architect of Minneapolis. These Plans Are Intended for a Brick House to Cost $2,500. Detail Copies of These, as Well as the Plans of Designs Appearing on Other Pages, May be Had from the Commission for a Small Sum into activity along similar lines. It has placed within reach of the people the idea that attractive modest homes can be built for a modest sum of money and embody at the same time the very thing which makes larger and more expensive houses attractive, namely: "architectural fitness."

PLANS FURNISHED FOR NOMINAL SUM

The state art commission is prepared to furnish plans of these houses for a nominal fee—just enough to cover the cost of making the blue-prints. Furthermore, it is in a position to substantiate these plans with educational service by giving home builders advice about building materials, cost of supplies and other products that enter into home construction. It is altogether a new and radical service, and one of the most unusual enterprises of the kind yet undertaken by a department of the state government. It is not a profitmaking enterprise. It is an educational service with a practical follow-up. It is being given splendid endorsement by the people, the manufacturers of building materials and the American Institute of Architects (The Minnesota Chapter), which has been, in a large measure, responsible for the professional character that the competitions have assumed.

BRICK IS POOR MAN'S MATERIAL, SAYS NEWSPAPER

In almost any city in the United States, says the Washington (D. C.) "Evening Star," one may now see ten attractive homes built of brick where fifteen years ago he saw but one. Some of these residences are finished with brick in combination with stucco. A popular construction is an exterior of brick to the sills of the first-floor windows, stucco to the third floor and shingled or stuccoed gables, the stucco in either case being applied on hollow-tile or on metal laths nailed to a wooden frame. If this stucco is applied to hollow-tile the brick belt is also veneered on tile.

As we pass these houses we think—if we think at all—"The rich can afford to build of brick. We poor or medium well-to-do folks must content ourselves with wood or with wood plastered with stucco."

The thought is wrong. It is not a settled fact that the small house cannot be well done in brick at the poor man's price, or at the figure of the medium well-to-do. If the truth were figured out it might be shown that the poor man and the man of the middle class cannot afford to build of anything but clay products. There are two vital items in the cost of a house—the initial cost and the upkeep. The upkeep may upset all the builder's fine calculations on the initial cost. A house may not be unlike an automobile in this regard.

UPKEEP IS LESS COSTLY

The initial cost of a home in brick, we are told by the manufacturers of that product, is from five to ten per cent. more than that of a wooden house of the same style and cubical contents. But the upkeep cost of the brick house is obviously less than that of the wooden one. It may be less than the interest charge on ten per cent. of the initial cost of the house.

We have hitherto thought that a brick or brick-and-tile residence of low cost—say $2,500 to $3,500—is not possible; that a home of reasonable size and beauty can not be built of that material at that price. A Northwestern state art commission has received from architects of that state thirty or more plans for brick and brick-and-tile houses that contractors have guaranteed to build for $2,500. Some of these plans will not work out into attractive houses, but enough will do so to prove that a satisfactory and artistic house can be built of clay products for this figure.

SMALL HOUSE PLANS PLENTIFUL

Nearly every large brick and building tile manufacturer has a series of plans for clay products homes at low cost, and has furnished material for the building of such homes. These houses are proving not only practical but attractive, showing that brick is not a stiff, clumsy material in the hands of a skilled builder.

The advantages of brick over wood are many. The cost of painting of the average six-room wooden house is about $35 a year. It must be painted every two or three years. The excess insurance over that on a brick house is about $5 annually, which together with other items, makes a total of not less than $50 a year against the wooden house. This is the annual interest on $1,000. According to this showing, the man planning a $2,500 wooden house can better afford a $3,500 one of brick or all-clay products. The brick manufacturers say that the wooden house at $2,500 can be built in brick and tile for $2,750. If so, the difference, $250, will be taken care of in the saving in upkeep in five years.

SAVES THE WALL FLOWERS

This further may be said in favor of the clay products house. Those who love house vines or plant decorations for their exterior walls do not have to suffer the periodical destruction of these plants at the hands of the vandal painter. Vines on brick walls need never be disturbed. Moreover, a brick house holds the market value of the residence property more stable than does the wooden house. Men who buy homes believe in the permanency of brick and usually pay good value for it.

The fire hazard of the wooden house is never fully taken up by the increase in insurance rate. When fire comes from the outside the brick house has two or more chances of standing as against the wooden house in a row of houses. The loss of a home is never paid for in full by the insurance if the insurance is honestly placed. This means that the home owner is carrying a fire risk over and above that carried by the insurance company.

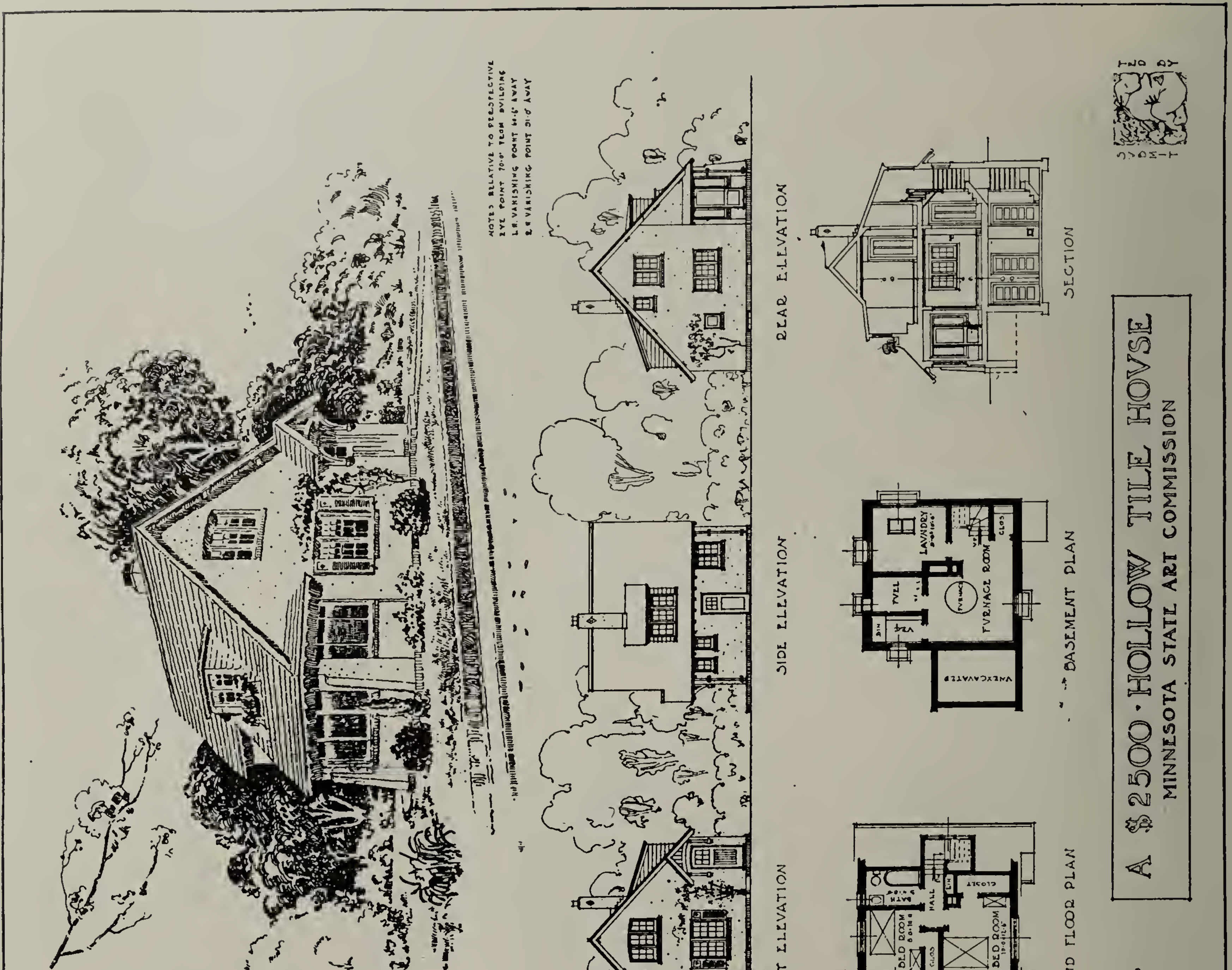
BEAUTY OF MODERN BRICK

The beauty of modern brick and the great variety of its color and face texture have gone far toward the making of brick residences popular. The old idea of a brick house was that of a crackerbox building done in badly burned red clay. Today the exteriors of brick buildings are as varied in color and design as are those made of wood.

However, when we build with durable materials, we shall need to take greater care of our house planning. An ugly structure or an impractical one done in time-resisting material is a greater calamity to the owner and to its neighborhood than is the light wooden thing we build and so lightly pull down and throw away.

⁂

The Milwaukee Pottery Company of West Allis, Wis., recently organized by Louis Weis and H. F. Schuette, both of Milwaukee, has purchased a parcel of ground and just completed a large plant equipped with four kilns and modern machinery for the manufacture of glazed and fancy pottery.



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Third Prize Design in the Minnesota State Art Commission's Architectural Competition for a $2,500 House of Brick or Hollow-tile. These Plans Call for a Hollow-tile Structure, Being Drawn by Oscar T. Lang, a Minneapolis Architect

The OPERATION *of a* PRODUCER GAS-FIRED CHAMBER KILN

Valuable Information for the Burner or Superintendent Who is Anxious to Know How to Best Handle This Somewhat New and Strange Piece of Equipment

By A. F. Greaves-Walker

TO THE UNINITIATED, who have merely observed a producer-gas-fired continuous kiln during operation, it seems to be the most simple and easily operated kiln in existence. There can be little doubt but that such is the case when once the operator grasps the basic principles of operation and gets thoroly acquainted with his kiln. Until a certain degree of experience has been reached, however, especially in regard to the handling of the draft, the number of chambers to carry in the circuit and the manufacture of efficient producer gas, the operator is very likely to come to the conclusion that instead of being the easiest, it is the most difficult of all kilns to handle. The fact is, it is practically impossible for green, untrained men to take hold of this kiln and make a success of it. After being taught the elementary principles, however, any man who will use his brains can become a successful operator. The gas kiln is really the most scientific of all kilns in its operation and, this being the case, it can be brought to a point where its handling becomes almost automatic. This fact often leads an operator into careless ways with the result that a few poor chambers will follow a string of good ones.

There is no question but that the gas-fired kiln has a poor reputation in some parts of the country, even to the extent of being looked upon as a failure. There are many reasons for this, but none of them have to do with the principle of using producer gas in connection with a continuous kiln.

EARLY TROUBLE DUE TO LACK OF KNOWLEDGE

Producer-gas-fired continuous kilns have been in use in this country only a comparatively short time. The first of these were decidedly experimental and naturally the results were not at all satisfactory to the clayworker. Much of the trouble was due to a lack of knowledge concerning the proper methods of construction, the lack of trained operators and a very great deal to the old type of suction producers.

With the increased knowledge that has come in the past few years, the constructional faults are being rapidly overcome, trained operators are now available and the newer types of gas producers have made it possible to produce a high grade, efficient gas.

As in the case of the coal-fired continuous kiln there are certain "standard" burning rules which must be used as a basis for starting a new kiln, but as each kiln developes its own peculiarities these rules must be changed to meet the conditions.

Gas kilns probably take longer to get into normal working order than do other types, altho this is not a general rule. Besides the heating up of the masonry and ground under the kiln, which takes several rounds, there is the necessity of training men for the work on the producers. The difficulty involved in accomplishing this latter end depends to a large extent on the fuel used and the intelligence of the men.

GAS MANUFACTURE

The success of the gas kiln depends largely upon the operation of the producers. The pressure producer is not ordinarily difficult to handle, but this depends largely on the kind of coal available.

Unless the producers are especially designed for the use of slack, this type of fuel cannot be used. Nut, run-of-mine and lump coal are satisfactory, the nut giving the best results when it can be obtained. When run-of-mine or lump are used the large lumps must be broken up, while run-of-mine containing much slack must be avoided.

The principal requirements of a coal for producer work are that it be high in volatile matter and low in ash and sulphur, which means that it should be non-clinkering. To be high in volatile matter, however, is not enough. Many coals have a fairly high volatility but give it off with a rush, thus flooding the kiln with gas for a few minutes, following which the supply is poor. The ideal coal is one that gives off its volatile matter slowly, keeping up a steady supply from this source while the CO is coming from the fixed carbon. Coals high in fixed carbon and low in volatility can be used successfully, but such coals are consumed slowly or, in other words, give off their gas slowly. The result is that greater producer capacity is required in order to keep up the gas supply.

Clinker is the greatest enemy of gas producers and, if there is any possibility whatever of avoiding a clinkering coal, it should be done. If it is not possible to avoid its use, success can only be had with producers designed by experts expressly for the fuel in hand.

DETERMINING TYPE OF COAL TO USE

There are a great number of ideal producer coals in different parts of the country and experiments should be made until the best one has been located. The analysis of a coal will tell very little about its adaptability, but it will, of course, give an idea as to whether it is worth trying or not. Experiments have shown conclusively that with two coals having very nearly the same analysis, one will be almost twice as efficient as the other. One of the very safest plans to follow when looking for a good producer coal is to consult the manager of the nearest domestic gas plant. Such a plant uses the highest grades of gas coal, as a general rule, and information as to its source of supply will be valuable. Usually, it will be a good investment to pay from twenty-five to thirty-five per cent. more than the local market price in order to obtain a high-grade coal, as the difference is easily saved in the added efficiency of the gas and the lowered cost of the labor required to handle the producers.

Special producers are designed for use with peat, lignite, anthracite and low-grade bituminous coals. In fact, any sort of fuel can be used in a gas producer, providing the latter is of the proper design.

RATE AT WHICH PRODUCER SHOULD BE FED

The rate of feeding coal into the producer depends upon its size or capacity, and the fuel. A six-foot producer working under easy conditions with a good coal will consume from 160 to 200 pounds per hour. There is a certain height in each producer at which the top of the fuel bed should be kept. This is usually slightly below the outlet flue. Naturally, fuel cannot be fed faster than it is consumed or it will rise above its proper level, which is the gauge that regulates the rate of feeding.

Pokering is a very important part of producer operation. This consists of dropping a long poker thru the poke holes in the top of the producer and practically "stirring" the fuel bed. The pokers should reach to the grates and the pokering should be done in such a way as to affect the entire bed from top to bottom. The idea is to break up any clinker over the grate that may prevent the proper distribution of the air blast and to loosen up the fuel so that the air distributes itself thru it evenly, thus preventing the formation of holes or channels thru it. The amount of pokering necessary depends entirely upon the kind of fuel used. Sometimes it must be done every hour. At other times, every three or four hours is sufficient. The producer man should constantly watch the surface of the fuel bed for "holes" or bright spots which show that the air is "channeling" and, when one is noted, the poker should be used at once to fill it up.

PRESSURE AT BLOWER SHOULD BE SIXTY POUNDS

The steam pressure at the blower should be kept at sixty pounds when the producer is operating normally. It is quite important that the pressure be kept constant under ordinary conditions and that it be not allowed to fluctuate with the boiler pressure. The only safe method of handling this problem is to install a regulating valve in the steam line between the boiler and the blowers. This will insure constant pressure.

The air blast from the blower should indicate from 1½ to 2 inches of water on a U-tube for best results, altho when an increased volume of gas is required it is necessary to run it higher.

The gas pressure in the producer necks should register about ¾-inch on the U-tube. Maintaining a much greater pressure than this is likely to result in the gas forcing its way out of the gas flues at every crack on its way from producers to kiln. When this pressure drops close to the zero mark a dangerous condition exists, especially if the gas is hot. Good producer gas is highly explosive when at certain temperatures and when mixed with air. As long as a pressure is kept on the gas, no air can be drawn into the flues. But when there is no pressure and the kiln is creating a suction, air may be drawn into the flues, and if the conditions are right, a serious explosion will result. Several kilns have been badly damaged thru explosions caused by such conditions.

GAS TEMPERATURE EXCEEDINGLY IMPORTANT

The temperature of the gas as it leaves the producers is most important. One of the greatest troubles producer gas users have had in the past is due to the fact that the gas "cracks" at certain temperatures and rapidly deposits either soot or tar in the gas conveyors or flues. This soot and tar chokes the flues and shuts off the supply at the burners, thus necessitating frequent "burn-outs," as the process of lighting up and burning out the deposit is called. The time consumed by these "burn-outs" is a dead loss, since the kiln has to be shut down during that period, which covers from twelve to twenty-four hours.

The conditions under which gas "cracks" are fairly definitely known and there is really no good reason why there should be so much trouble from this source. Of course, producers are designed which overcome the trouble, or scrubbers could be installed for the same purpose but, as only the simple forms of producer are used on clay plants, and since scrubbers are expensive and unnecessary, the only method left to the clayworker is temperature control.

Producer gas made in the type of producer generally used will deposit tar at temperatures below 800 degrees Fahr. and will deposit soot at temperatures above 900 degrees Fahr. These temperatures refer to the gas as it leaves the producers.

It will be seen that there is a neutral zone between 800 degrees and 900 degrees Fahr. and, when the gas is kept within this zone, the minimum amount of tar and soot will be deposited.

EVERY COAL HAS NO-DEPOSIT TEMPERATURE

Experiments made by the author seem to show that each coal has a definite temperature at which there is practically no deposit, altho all the coals experimented with remained within the above mentioned range. By closely watching pyrometers installed in the gas necks it has been possible to operate a kiln for fifty-nine days before being troubled with choked flues; and by the simple method of keeping the gas at the proper color, it was possible to run without interruption for from thirty to forty days. When it is taken into consideration that the average gas kiln requires burning out every seven to ten days it will be seen how important it is to watch the gas temperature.

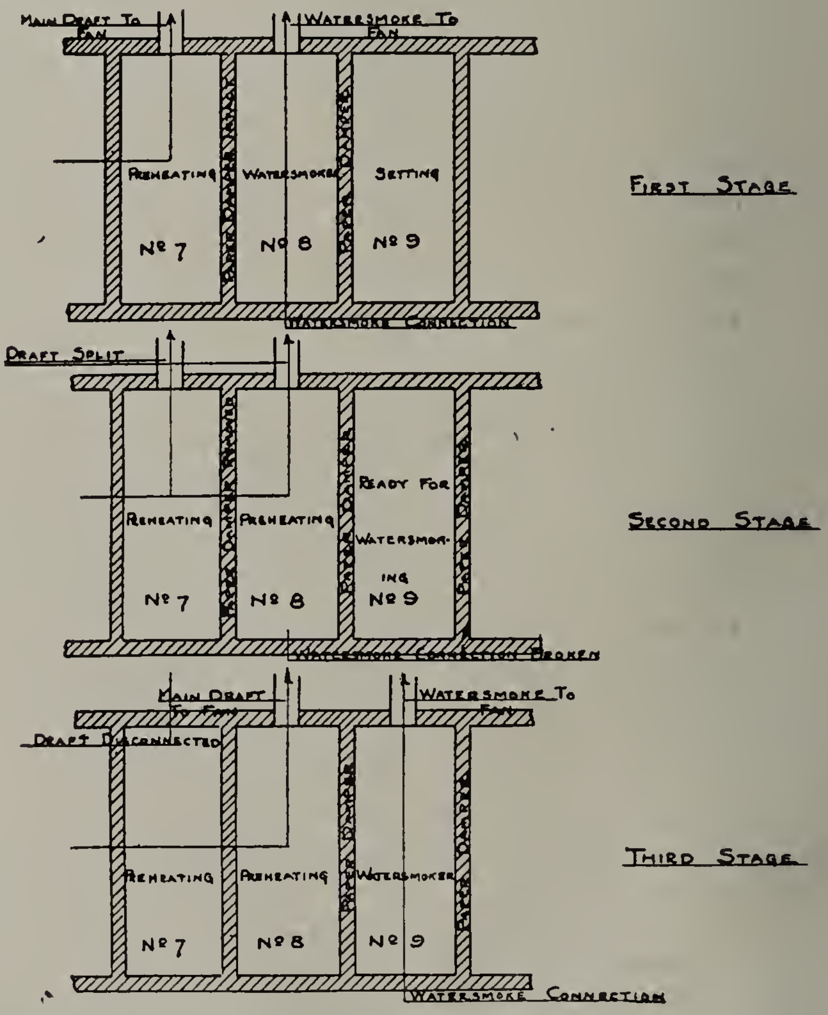


Fig. 1. Diagram Showing Method of Advancing the Heat

It is much better to keep the gas too cool than too hot. Tar is troublesome at the valves, but it takes up very little space in the flues and accumulates slowly. On the other hand, soot accumulates very rapidly and soon causes trouble. It should also be borne in mind that a high producer temperature means a reduction in the quantity of gas, for it is the burning of the gas, or the ingredients which make up the gas, that produces the high temperature.

When the gas temperature is between 800 and 900 degrees Fahr. the gas has a rich yellow color, tinged with light green, and if it is held at this color it cannot be far from its most efficient state. Hot gas is nearly colorless except that some smoke is seen in it. When it is very hot, it appears as nearly all smoke. Such gas is almost worthless except for its sensible heat.

When gas is at its best it will not ignite at the poke holes when a match is applied to it. As the temperature increases however, it will ignite readily and will finally reach a stage where it will issue as flame instead of gas.

HOW TO CLEAN A PRODUCER

There are various methods of cleaning the producers. On some plants the clinker is removed each day; on others, only once each week. A great deal depends upon the amount of clinker or ash the coal produces, but in any case it is quite unnecessary to clean as often as every day. Cleaning, especially in hot weather, is a nasty job and as much of it as possible should be avoided. In some cases all of the clinker is pulled out from beneath the producers thru the water pans, but it is far easier and quicker to remove all possible thru the clean-out doors and then with a bar punch the remaining clinker to the bottom where it is then pulled out thru the pans. Two rows of sight holes are provided on most producers. Sufficient clinker should be removed so that the fire may be seen thru the lower row and, when the clinker bed grows sufficiently thick to cover the upper row, it is time to clean again.

When producers are started it is best to dump in enough ashes to cover the grates. A wood fire is then started and coal fed as rapidly as it will ignite, until the proper fuel bed level is reached. The blowers are then started and run for a few hours until the gas begins to have the proper appearance. During this time the products of combustion are let out thru the clean-out doors in the gas necks.

When feeding gas to a kiln which is just being started it is always best to have the gas quite hot, that is, from 1,100 to 1,200 degrees Fahr. Such gas will ignite readily, while cool, rich gas may cause an explosion, with serious consequences. It is never safe to attempt to light gas in a continuous kiln chamber unless red heat can be plainly seen. This can be done by one who has become expert in the handling of gas, but even under such circumstances, kilns have been badly damaged by explosions, the cause of which were unknown.

METHOD TO FOLLOW IN BURNING OUT FLUES

Burning out the deposit in the flues is a comparatively simple matter. The kilns of latest design are equipped with flues which connect the fan with the gas flues. The older kilns have stacks, called "burn-out" stacks, which provide draft for the same purpose. When the stacks are used the process is a slow one, consuming considerable time. When the flues can be connected with the fan, the soot and tar are consumed very quickly. To start the deposit burning it is only necessary to open the wicket in the main gas flue near the producers and start the draft. The temperature in the flues is sufficient to ignite the soot and tar. In order to burn out the distributing flues, the gas valves on the chambers that are still red are opened slightly as is also one or two of the gas ports. This pulls the heat from the chambers thru the distributing flues and burns the deposit. Care must be taken not to let the temperature in these flues become too high or the iron gas valves will be damaged. Simply closing the main gas valve stops the fire in these flues. If they are not burned clean at the first attempt, they should be allowed to cool somewhat and the operation then repeated. Of course, only those distributing flues on chambers which are at red heat can be burned out in this way, but as a different set of chambers are in this condition at each burn-out period, they all receive attention in time. The distributing flues do not accumulate much of a deposit as they are in use for only a short period at a time, and at that time are at a fairly high temperature on account of their proximity to the heated chambers on each side.

It is very easy to determine when the flues have been burned clean. While the deposit is burning a thick smoke issues from the fan stack. When this ceases the flues can be assumed to be clean.

SETTING

There is nothing complicated about the setting in a chamber kiln as each chamber is exactly like a rectangular down-draft. Any method of setting which is used in a down-draft kiln can be followed successfully. This applies to brick, hollow-ware or other ware. In the one side fire type there is sometimes a tendency on the part of the gas to pull to the side of the chamber opposite the flash wall, but more often the tendency is to short cut to the floor close to the flash wall. In the former case it is necessary to tighten the setting against the partition wall and open it somewhat toward the flash wall, while in the latter case the method is reversed and the setting made tight against the flash wall.

In most gas kilns it has been found best to allow plenty of room between setting and crown if speed is desired. Experiments will have to be made with each kiln to find out at what height the greatest kiln speed can be attained. Experiments carried on by the author seem to show that after passing a certain height it becomes difficult to reach the bottoms which, of course, slows the kiln on account of the extra time consumed in getting the bottom ware to the finishing point. On the other hand, it was found that to set below a certain level did not increase the kiln speed at all, taking about the same amount of time to finish the chamber properly. Naturally, the material used and the ware produced has a great deal to do with the results. When the raw material has a very wide burning range and there can be a wide difference between the temperature, top and bottom, without injury to the top, the ware can be set higher without decreasing the speed. Also when fairly soft ware can be disposed of, there is not the necessity of spending so much time in getting the bottom to somewhere near the same temperature as the tops.

WATERSMOKING

Chamber kilns are equipped with watersmoking flues and, on account of their down-draft design, watersmoking can be efficiently done. The chamber from which the heated air is to be drawn should be selected, not on account of its location behind the fire, but on account of its temperature. Generally, the connection to the watersmoking flue is made with the chamber ahead of the last one broken into. The heat from this is drawn into the chamber to be watersmoked until the temperature of the latter is as high as it is possible to get it. The connection with the warm chamber is then broken and advanced to the chamber ahead, the temperature of which, of course, is higher. The heat from this chamber brings the temperature of the watersmoker still higher and, as a rule, is sufficient to finish this period. This practice is hardly necessary except in cases of clays which scum easily. When efflorescence is not feared it is the usual practice to get what heat is possible from one chamber and then connect the watersmoker to the main burning circuit.

The watersmoker is isolated by means of paper partitions over its own bag wall openings and those of the chamber ahead, which is being set. Great care should be taken to have these partitions properly pasted on or draft troubles are sure to occur. When all of the connections are made with the watersmoking flue, the connection between the chamber to be watersmoked and main draft flue is made. This does not in any way interfere with the draft or operation of the burning section. The watersmoker is as independent as if it were a single down-draft kiln.

When the watersmoking is completed a hook is inserted thru the sight holes at each end of the chamber and the paper partitions torn. The draft is then "split," part of it being taken thru the watersmoker and part thru the chamber behind. This is accomplished by allowing both connections with the main draft flue to remain and partially closing the dampers on each one. The effect of this is to reduce the shock of the hot gases from the burning section on the watersmoked ware. As the temperature in the new unit increases, its damper is opened wider while the one behind is closed to the same extent. This is carried on until all of the draft is being taken thru the new unit, at which time the connection with the chamber behind is broken. This process of connecting up a new unit will take from four to twelve hours according to the raw material. Fig. 1 shows a diagram of this process.

It is only necessary to tear the paper partitions at each end of a chamber as the draft will then tear off the balance at once. *(To be Continued)*

COST ACCOUNTING *for the* CLAY PLANT

Wherein Are Presented the Fifth and Sixth Tables of a Uniform System of Cost Keeping. Do Not Hesitate to Ask Questions

By A. J. Huac

CONTINUING THE PRESENTATION of two cost tables every issue, the fifth and sixth are given below as a part of the uniform system that is unfolding itself in these columns as the weeks go by. For the benefit of any reader who for any reason may not have had the opportunity of reading the previous installments of this system, and therefore does not understand the meaning of the various signs used in the tables, attention is called to the fact that this information may be obtained from the August 15th issue on page 307.

DRYING

The work of this department is to dry the ware by driving out the water that was mixed with it in the molding operation. In some plants the costs of this department are small, but in others they amount to quite a percentage of the total. Only in a few cases is the labor a large item. Sewer-pipe

TABLE NO. 5—DRYING

Line No.	Post From		Post To	
1	T19-IX	Labor or Equivalent		
2	T20-V	Repairs, Tools and Supplies		
3	T2-18	Power		
4	T21-XII	Fuel		
5	(1 to 4)	Operating Total................	....	
6	T26-42	Tons Dried	(11)	
7	(5 ÷ 6)	OPERATING COST PER TON DRYING		
8	T22-V	Interest, Taxes, Insurance and Depreciation		
9	T13-17	Superintendence		
10	8 + 9	Overhead Total................	....	
11	(6)	Tons Dried		
12	(10 ÷ 11)	OVERHEAD COST PER TON DRYING		
13	(7 + 12)	TOTAL COST PER TON DRYING	T16-7	

TABLE NO. 6—SETTING

Line No.	Post From		Post To	
1	T19-X	Labor or Equivalent		
2	T20-VI	Repairs, Tools and Supplies		
3	T2-20	Power		
4	(1 + 2 + 3)	Operating Total		
5	T27-35	Tons set in Kilns	(10)	
6	(4 ÷ 5)	OPERATING COST PER TON SETTING		
7	T22-VI	Interest, Taxes, Insurance and Depreciation		
8	T13-19	Superintendence		
9	(7 + 8)	Overhead Total		
10	(5)	Tons set in Kilns		
11	(9 ÷ 10)	OVERHEAD COST PER TON SETTING		
12	(6 + 11)	TOTAL COST PER TON SETTING	T16-15	

plants and drain-tile factories would charge the cost of "turning" their ware to this department. Plants using the open air or a hot floor for drying would have practically nothing to enter here except the overhead costs. In that case they can easily combine tables Nos. 4 and 5. Some plants can even combine tables Nos. 3, 4 and 5. In all those cases use table No. 4 for the combined form. Medium sized and large plants will find it very advantageous to use each table as outlined here without combining them, even tho they apparently seem unnecessary. One of the principal advantages of these tables is the comparison possible between various periods of manufacture. These comparisons will show up weak points which, when corrected, will more than pay for the cost of keeping the records.

Power is used in "drying" whenever a fan is used with which to drive in hot air or exhaust damp air. In plants using the exhaust steam for drying, the item "Fuel" on line No. 4, should be charged with a percentage of the fuel used to make steam. This should be the amount of fuel that is actually used minus the amount that would be used to do the same work, if the exhaust steam were not used for heating. For example, imagine a plant which uses steam at one hundred pounds, the back pressure of which is five pounds due to using the exhaust steam for drying. If this plant had a different method of drying and exhausted its steam into the open air they would use less fuel at its boilers. The difference between these two conditions would be this plant's real cost of "Fuel" for drying.

In factories using drying tunnels the investment in rails, cars, drier, etc., should be charged to this department.

Plants which operate their boilers at night for no purpose except to dry the ware should charge all this expense to "Drying."

SETTING

The work of this department is to take the ware from the drier, dry room or hot floor and set it in the kilns preparatory to burning. The principal item in this department is labor. In fact the others are comparatively small. "Power" is added because in some places power-driven transfer cars are used. The investment amounts to very little except in a few cases. In plants using drier cars on tracks, the investment in tracks ought to be charged to setting, but it can easily be charged to the drier without any inconvenience or disadvantage, in fact with convenience and advantage.

As with all of these tables, we arrive at our costs on the tonnage basis, and later multiply by a differential for each class of product. When desirable table No. 6 can be worked out on the basis of costs per thousand.

* * *

New Paving Specifications Just Off the Press

Specifications covering the construction of vitrified brick streets and highways of the sand-cement super-foundation type, also of the green concrete foundation type, bright and new, have just been issued by the National Paving Brick Manufacturers' Association. These publications contain the revised specifications of the association, in which an effort has been made to set forth in clear, concise language, following the natural order of procedure in the work, the operations and quality of materials to be used in construction which, if followed, will insure the best results in the several types for which provision has been made. Suggestive notes have been included, as occasion arose, covering matters not inclusive in general specifications but which, it is hoped, will be helpful to engineers in the preparation of their specifications suited to local requirements.

The booklet containing specifications for pavements of the sand-cement super-foundation type has forty-six pages and is divided into two parts.

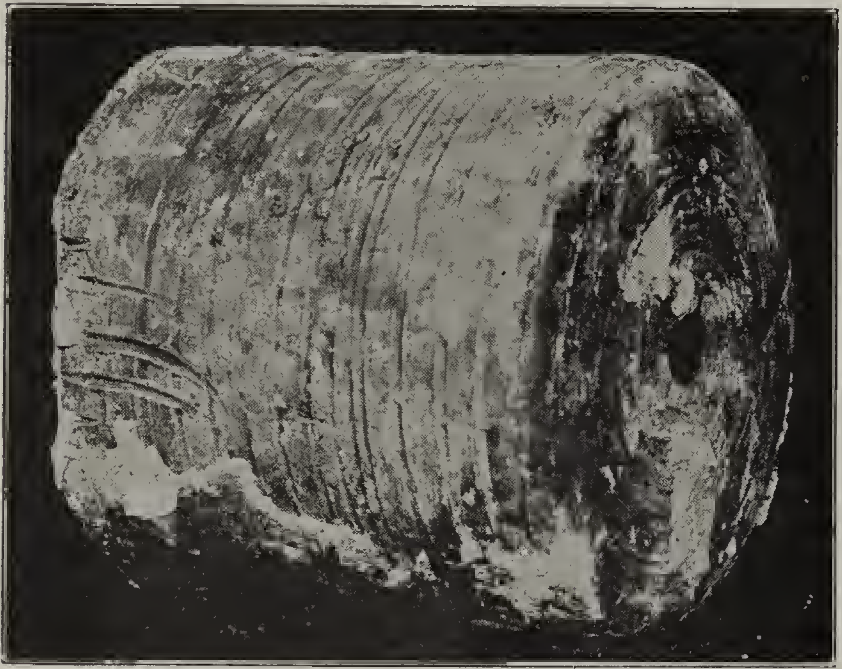
Of particular interest is the booklet containing the specifications for the green concrete foundation type of pavement—a type that has been dug up after several years' oblivion and, with some important changes over the former method of construction, is finding great favor with highway engineers, particularly in the building of rural roads. This book is also divided into two parts, the first covering the construction of vitrified brick street pavements, and the second, of vitrified brick country roads. Both booklets are well illustrated and should be a valuable addition to the library of every clay products manufacturer. Copies may be had by addressing Will P. Blair, secretary, National Paving Brick Manufacturers' Association, 830 Brotherhood of Locomotive Engineers Building, Cleveland, Ohio.

WHEEL-MADE HOLLOW-TILE

How the Wrecking of the Dome on the Old and Historic St. Louis Hotel at New Oreans, La., Has Brought to Light a Curious Clay Product

By Paul E. Cox

THE WRECKING of the old St. Louis Hotel, which was the social center of the French quarter—in the days when the French quarter stood for a great deal in New Orleans—has revealed some interesting products of the clayworker's art. The great rotunda of this hotel, with its Roman dome, has always excited much interest on account of the artistic merit of the design. The removal of the plaster, copper roofing and the decorative panels has laid bare the methods of construction, with the result that architects and local lovers of art and architecture have been much interested in these old processes.



A Crude Ancestor of Hollow-tile. Made on a Potter's Wheel from "New Orleans Mud," This Humble Product Contains Much of Interest for the Art Lover and Architect

TILES RESEMBLE UNGLAZED CLAY JUGS

The dome in question has a skeleton of iron ribs, these being filled in between with what really amounts to unglazed clay jugs about the size of a common gallon jug, but with the neck left off in the making and the dome of the jug made flat with the "rib." No effort was made in the manufacture of these curious pieces of clay product to give the exterior a smooth surface but, on the contrary, the potter turned the corner of the "rib" into the piece as he finished it and so made grooves to which the mortar could cling. The bottom edge of the piece was not rounded in finishing but was left with a wire edge and no care taken to get the clay up from the lower corner as a good potter usually does. The ball maker, however, took these jugs and cut off a slice in such a way from four places so that when the jug is looked at from the bottom up, it is, in a general way, a square rather than a circle. These jugs or tiles were made on a kick-wheel from local clay, called by the makers of furnaces used in cooking red beans and rice, "New Orleans mud." The tiles were burned in a primitive sort of kiln and are about as dense as a common red flower pot. Considerable mortar was filled in the spaces left by the curve of these cylinders and no great pains were taken to make the work smooth, nor to fill all the spaces. This sort of construction made the dome a very light one, the spaces being much greater than the masses.

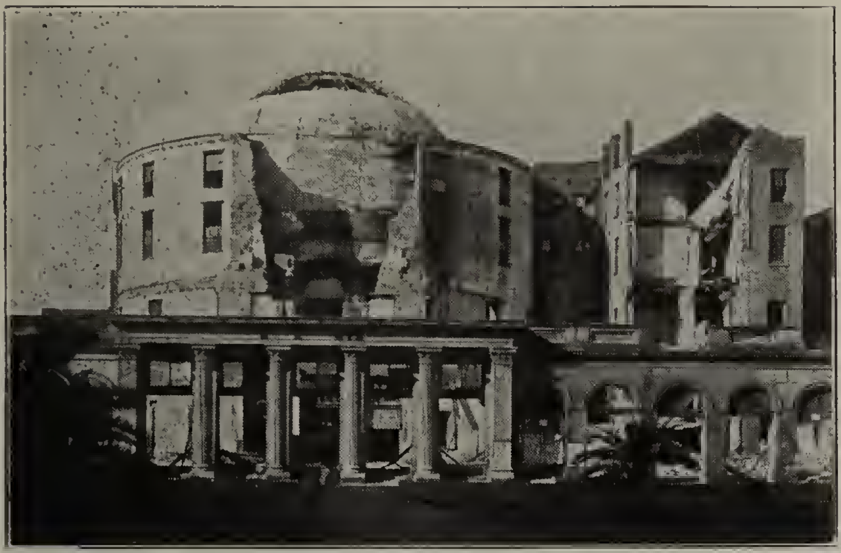
An aged potter, for many years in the employ of the art pottery connected with Newcomb College in New Orleans, is authority for the statement that another old building in that city, long since torn down, had a dome with similar tiles but the potter in making them, knocked them on a board at a time when they were in a condition to stand this sort of treatment, in such a way that the one side was squared for a considerable distance of the length of the tile. This made it possible to lay them up with a great deal less mortar. The advantage is obvious.

UNUSUAL BRICK IN COLUMNS OF ROTUNDA

Another odd feature in the materials from which the old St. Louis Hotel was built, which is of interest to the clay products manufacturer, is the type of brick used in building the huge columns of the rotunda. These brick are redder in color than any in the rest of the structure and were evidently made from a different clay than the brick otherwise used. They are only about 1¼ inches thick by 3 inches wide. As yet these columns have not been torn down, so it is not possible to note the length of the brick, but it is evident that these small brick were used with the idea of producing an even surface over which to plaster. There is a story which claims that these brick came from Spain.

A View of the Old St. Louis Hotel as it Was When the National Brick Manufacturers' Association Met at New Orleans in 1913

The St. Louis Hotel was built in 1835 as a result of a movement on the part of the people living in the French



A View of the Building as It Appeared During the Middle of July Last, Having Been Wrecked Up to This Point

section to keep the business center of the town below Canal street. The building was the scene of great balls and other social affairs. The rotunda was the "Exchange" and, generally, the place for gentlemen's barter. From 1874 to 1882 this building was the state capitol of Louisiana. The rotunda was floored over at the height of the second floor, making a great domed room in which the legislature met. This floor was in place at the time of the demolition of the hotel. During the Reconstruction period following the civil war, the hotel was under siege with eight hundred men inside and twice the United States troops interfered to keep in place a government distasteful to the majority of the people in the state. Henry Clay was entertained there in 1843, the supper costing twenty thousand dollars—a huge sum for those days. The ball rooms of this hotel and the balls given in them were famous the world over.

It is rather pleasing for a clayworker to think that the last word in the mass of romance about this hotel of the days before the war, should have to do with a bit of clay fashioned by the skillful hand of some forgotten potter, burned and made permanent so that anyone who cares can read how a man worked and thought some eighty years ago.

* * *

Potters and Operatives in Joint Session

With a view toward avoiding a repetition of the frequent breaches in the agreements between the National Brotherhood of Operative Potters and the United States Potters' Association, which have become more prominent during the current year than ever before, the executive committees of both the above organizations met at Atlantic City, N. J., during September, reaffirming and elaborating on the existing agreements. They will handle strikes and lock-outs in the future, by means of their joint board.

The meeting extended over two weeks and, after several long discussions, it was seen that both factions desired a more general observance of the yearly compacts, stating that, in the past, the local unions, as well as the plants, have had a tendency to take matters into their own hands. Thru the new board of arbitration, changes or any grievances will in the future be first placed in its hands and only in cases of a deadlock will either side resort to extreme measures.

When the manufacturers met in executive session on the closing day of the conference, they agreed to meet the potters half way on the wage propositions for the sanitary branch of the industry. The kilnmen and pressers were advanced approximately seven and one-half per cent. The former had originally made demands for fifteen per cent. The mold makers, blockers and pressers were given a flat rate of $4 per day. The new scale will mean an increase of about fifteen per cent. for the first mentioned, while the wages of the last two will remain practically the same. Employes in these departments work nine hours a day and are given a half holiday on Saturday under the new agreement. The casting departments also figured in the demands, but were refused concessions. Several minor changes in their departments were also discussed, but no definite understanding was reached. These matters were referred to subsidiary committees which will report back within ninety days.

Some concessions regarding working rules were granted that will tend to increase the earning power of the employes. In all, twenty-three demands and adjustments were settled before the joint session adjourned.

The new contract for the sanitary branch of the industry will become effective on November 1st and extend over a period of two years.

* * *

New York Building Shows Gaining Impetus

Plans for the Second Complete Building Show, to be held in the Grand Central Palace, New York City, under the direction of the International Exhibition Company, are progressing rapidly. Cleveland, Ohio, being the home of the First Complete Building Show, a branch office has been established in the Leader-News building, that city, with R. C. Collier and W. C. Ewart in charge. Virtually all the national business of the company is being handled from the Cleveland office, while the show proper is being directed from the New York office in Grand Central Palace.

Among the conventions likely to be held at the same time and place as the show, but not as yet definitely assured, are the New York State Builders' Supply Association and several national lumber organizations. The latter are expected to play as prominent a part in the exposition as they did in the initial show.

With regard to the exhibits themselves, there will be several large community displays, in which manufacturers will be invited to show their products. The show is open to all materials.

"It is proposed to make the Complete Building Show a national movement," says Mr. Collier. "Its object is to promote better building thruout the country. We believe it is now assured as an annual event. St. Louis is making a strong bid for the show and conventions for 1918. It is probable there will be a show and conventions in all large cities for several years to come."

Mr. Collier is an expert in organizing these expositions and in helping to prepare for the conventions held in conjunction with them. He did considerable work on the Cleveland show last year.

* * *

Illinois Plant Completes Electrification

The Streator (Ill.) Brick Company is completing the electrification of its plant at that point, this work having been started more than a year ago when the fans for its waste heat drying system were arranged to be driven by two 15 h. p. motors. A 100 h. p. motor has been installed to drive the main line shaft in the machine room, the power being transmitted thru a silent chain.

Arrangements have also been made to drive the deep well pump on the company's property, which supplies the water for the plant, with a motor. Electricity has already been used in the shale pit where a motor hauls the strippings out to the dump. An electric shovel does the stripping while another digs the shale. An electrically operated drag-line excavator will be installed this fall which will displace both shovels.

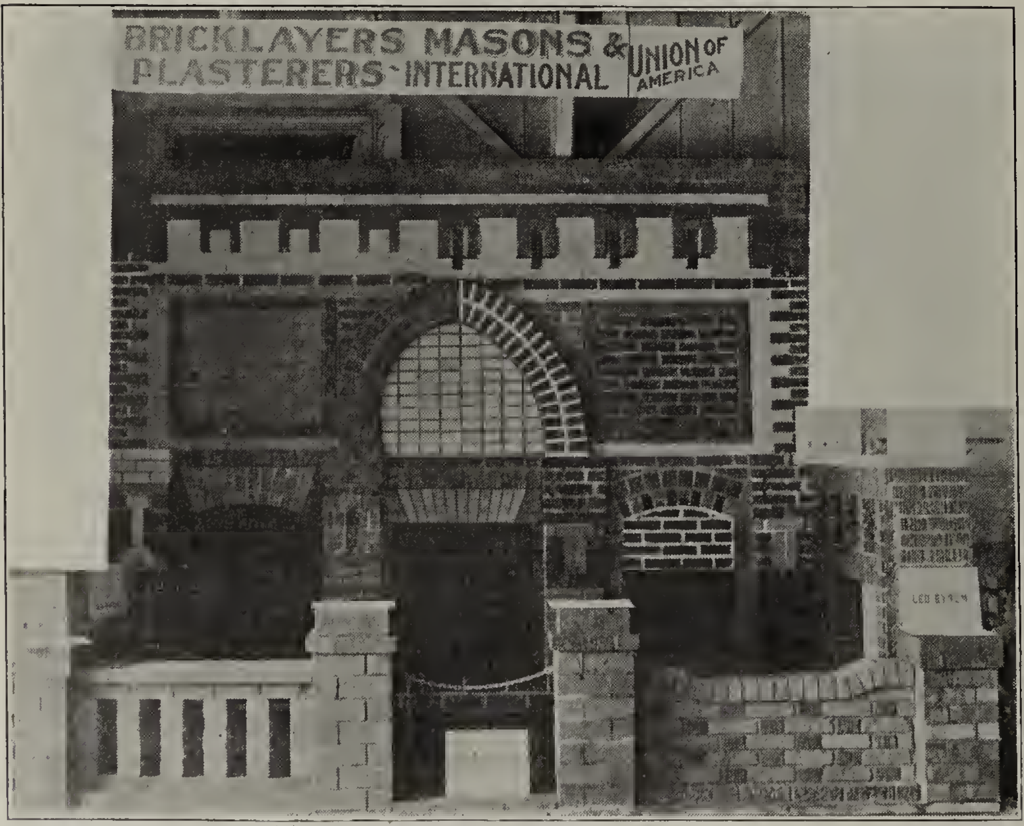
BRICKLAYERS DO GOOD PROMOTION WORK AT W. VA. FAIR

N ORGANIZED BODY of "Build with Brick" enthusiasts in action is an inspiring sight to the average brickmaker who finds it a little hard sometimes to get the building public enthusiastic about brick, but when such a group of "boosters" is none other than the men who lay up this material in the finished wall, the brickmaker's inspiration takes the form of a stronger faith in the brotherhood of man.

In the July 18th, 1916, issue of "Brick and Clay Record," on page 154, was published under "The Letter Box" a communication from Hal. B. Stroup, president of the Ohio State Conference, B. M. and P. I. U., stating that he was about to launch a state-wide "Build with Brick" campaign and asking for help from the manufacturers of that product, particularly as regards a supply of adequate literature to hand out to prospective home builders.

Since the above date the Ohio bricklayers have been very busy, with the result that they had a very good exhibit at the West Virginia State Fair, held at Wheeling from September 4th to the 8th.

While it may seem strange that the bricklayers should go out of their state to stage an exhibit such as is shown in the accompanying illustration, there is less of a mystery about the move when it is remembered that Wheeling is a central point in the Ohio valley to which people from all the small towns on both sides of the river journey. Mr. Stroup states that by having a display at this point, the bricklayers were able to get the message before many of the people of these small towns.


BRICKLAYERS MASONS & PLASTERERS INTERNATIONAL UNION OF AMERICA
LEO BYRUM

Brick Exhibit Which the Ohio State Conference of the B. M. and P. I. U., Had at the West Virginia State Fair Held at Wheeling During the Early Part of September

The exhibit which is shown herewith is admittedly a little "odd" but this was due to the fact that the bricklayers' space was limited to fourteen feet and, in order to show as many different kinds of work as was desired, they were compelled to crowd the exhibit somewhat. It will be noted that one-half is on a different level than the other half and that both are laid up in different styles. The half arch on the right hand side, it will be noted, is of a Gothic style, the brick being laid in white mortar with a bead joint, while the other half of the arch has taken the form of a semi-circle, the brick being laid up with a brown mortar and a concave joint. This was done for two reasons, the first of which was to show both kinds of arches, and secondly, to make the people take notice and ask questions. The bricklayers had someone stationed at their booth at all times to pass out literature and explain the differences between both halves of the exhibit.

To the right of the picture is shown a beautiful brick mantel which was laid up entirely by Leo Byrum, a member of the Wheeling local, who makes a specialty of this class of work. The plans for the entire exhibit were drawn by George W. Hercules, a member of the Bellaire local. Interested contractors furnished the money to pay for the rent of the space occupied by the booth and for the advertising, while brick dealers and manufacturers furnished the material. The bricklayers did all of the necessary work in laying it up. The outcome of this co-operative effort was that everyone was very enthusiastic over the results obtained.

Mr. Stroup reports that he is getting up an exhibition to extend over a week to be held some time during the coming winter in the auditorium in Wheeling. This exhibition will no doubt take the form of a concerted move to stamp upon the minds of prospective builders in that vicinity the advisability of building with brick. The Chillicothe local of the B. M. and P. I. U., it is reported, will also hold some kind of a display in the near future. Mr. Stroup has sent them all of the literature that was left over from the West Virginia State Fair, but there is no doubt but that this local will be able to use additional literature. Steubenville also has a committee working up something, the exact nature of which is not as yet known. Mr. Stroup expects to meet with them some time soon and is sure that, if the brick manufacturers will assist the bricklayers, considerable good work can be done in the way of brick publicity at that point.

Plans are now being formulated for the building of a miniature brick house by the Ohio State Conference, providing it can secure a sufficient number of small brick for this purpose. The idea is to set the miniature house in a show window when it is finished, where it will work twenty-four hours a day as an advertisement for brick, adding but another attractive feature to the productive campaign being staged in favor of brick construction.

IMPORTANT ACTION TAKEN *on* TILE *and* PIPE SPECIFICATIONS

Recent Convention of American Society for Testing Materials Adopts Report of Committee C-6 and Accepts Recommendations of Committee C-4

INCLUDED in the good work accomplished at the recent annual convention of the American Society for Testing Materials, held at Atlantic City, June 27th to 30th, 1916, was the action taken on two matters which are of vital importance to clay products manufacturers.

DRAIN-TILE SPECIFICATIONS ADOPTED

The first of these was the adoption of the report of Committee C-6 on drain-tile. This report took the form of revised standard specifications for that product, an able committee being in charge of this work, of which Dean A. Marston of Iowa State College, Ames, was chairman; A. N. Talbot of the University of Illinois, Urbana, vice-chairman, and J. T. Stewart of the University of Minnesota, St. Paul, was secretary. In the annual report of the executive committee of the society, issued after the June meeting at Atlantic City, it was unanimously voted that the proposed revised standard specifications for drain-tile compiled by Committee C-6 be issued to the entire society for letter ballot. Since almost no specification or recommendation has failed to pass the letter ballot, after having been recommended by a vote of the convention, it is safe to say that these specifications have been adopted. A copy of same may be obtained by addressing Edgar Marburg, secretary, American Society for Testing Materials, University of Pennsylvania, Philadelphia, Pa.

APPROVE TENTATIVE PIPE-LAYING SPECIFICATIONS

The second matter of interest to our readers was the recommendation that one section of the report of Committee C-4 on clay and cement sewer-pipe, which section refers to the laying and not to the pipe itself, be printed as a tentative standard specification in its amended form. The committee itself made so many objections to and changes in its proposed report that the chairman recommended before the convention that it be not published to any further extent in its present form, with the exception above noted.

While the adoption of this specification for laying sewer-pipe was only a matter of a few minutes at the convention, it must be realized that it is a subject which many manufacturers of that commodity have been studying for several years and concerning which much work has been done with the various engineer members of the American Society for Testing Materials to accomplish its publication its present form. It was not only necessary for the clay products members of Committee C-4 to advocate this specification for laying in order to induce the contractor to handle clay pipe so as to get the maximum strength value out of it, but at the same time, it was necessary to contest a very great deal which was detrimental to clay pipe and which naturally arose in the discussion.

MANUFACTURERS SHOW NEW CO-OPERATIVE SPIRIT

One thing that has hindered those of the committee who are primarily interested in clay pipe, has been the lack of co-operation among manufacturers of this commodity in different parts of the country. However, it is reported that on this last occasion all of those members who were present from both East and West had so far seen the necessity of co-operative action that they were willing to spend a day or two ahead of the American Society for Testing Materials convention to go over the specifications piece by piece and decide just what action should be taken on each part. It was only this concerted action which enabled the clay products members to convince the entire committee of the unfairness of some portions of the proposed report and to prevent its further publication in its existing form, for the present. The action which the society took upon the specifications for laying pipe may also be traced to this same co-operative effort on the part of those interested in clay pipe.

Furthermore, it must not be forgotten that the various associations of sewer-pipe manufacturers, of which the International Clay Products Bureau took the lead, were in large part responsible for the defense of clay products interests in this matter. This is certainly an excellent example of the kind of co-operation that is badly needed in all divisions of the industry.

The open-mindedness of the engineer members of Committe C-4 must not be overlooked, as it was due to their sense of fairness and the considerable time and study which they put in on the subject, that the entire committee was able to accomplish as much as it has.

PROPOSED TENTATIVE RECOMMENDED PRACTICE FOR THE LAYING OF SEWER-PIPE

The tentative specifications for the laying of sewer-pipe, which are given below in their entirety, should be preserved in the files of every clay sewer-pipe manufacturer. These recommendations are limited to conditions which will affect the strength of pipes, their resistance to the external stresses, and are not intended to cover the art or practice in other respects. It is the intention of the committee that the acceptance of sewer-pipe to be furnished in compliance with specifications for this product as finally presented to and adopted by the society, shall be generally conditioned upon the substantial observance of the precautions formulated in the "Recommended Practice for Laying of Sewer-Pipe," as finally adopted by the society. These specifications were published substantially as follows, among the tentative standards in the 1915 year book of the society. Some minor changes, recommended by the committee, have been incorporated in the revised form, as follows:

I. PREPARING TRENCHES AND FOUNDATIONS FOR PIPE LAYING

The foundations in the trench should be formed to prevent any subsequent settlement and thereby possibly an excessive pressure and consequent rupture of the pipes.

If the natural foundation is rock it is recommended that an equalizing sand bed be placed upon the rock and well compacted by watering or otherwise so as to obviate irregular settlement. If the natural foundation is good firm earth, the earth should be pared or molded to give a full support to the lower third of the pipe. Otherwise the bed should be made firm, either by sand well watered or rammed, or by a layer of cement mortar. The same means of securing a firm foundation should be adopted in case the excavation has been made slightly deeper than necessary.

If there is no good natural foundation, a firm and sufficiently broad bed should be artifically made either with sand, with gravel or broken stone, with concrete, reinforced concrete or other means to secure a solid and firm foundation.

If the soil is porous and ground water rises above the sewer pipe, a plank foundation with or without piles may be advisable.

When the sewer is to be laid in a concrete cradle, the concrete for the full width of the cradle should be continuously deposited to the height of the outside bottom of the pipe. Before the concrete has set the pipe should be evenly bedded therein and the remainder of the concrete immediately placed on each side of the pipe and carefully tamped in such a manner as to avoid disturbing its position. Or, the pipe may be supported and held in position by wedges or templates and the concrete mixed wet, and poured under and around it in such a manner as to complete the cradle in one operation.

When the sewer is to be laid in a gravel or broken-stone cradle, the material should consist of clean gravel or sound broken stone, all of which should preferably pass through a screen of 1-in. mesh and be retained on one of ⅛-in. mesh. The gravel or broken stone should be deposited and consolidated for the full width of the trench to the height of the outside bottom of the pipe. The pipe should then be bedded therein and the remainder of the gravel or broken stone deposited and carefully consolidated in such a manner as to avoid disturbing the position of the pipe. The cradles should in all cases be so constructed that an excessive proportion of the load shall not be borne by the hubs.

If the trench is situated in ground water, it is recommended to lay the pipe in a concrete cradle up to the springing line to maintain firm joints.

When a sewer is to be laid without a cradle the earth forming the bed should be carefully freed from stones and organic material. The pipe should then be evenly bedded therein, the joints properly made and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the position of the pipe.

When pipe is laid in soil which is not sufficiently firm to carry it, the earth or soil should be removed, and sufficiently broad foundations and retaining supports substituted.

When pipe is to be laid in new embankment the fill up to a point over the springing line of the pipe should be deposited in layers not exceeding 6 in. and thoroughly consolidated by rolling, ramming, teaming, watering or a combination of these, depending upon the nature of the filling material, whether it is clay, sand, gravel or a mixture of these.

If a pipe line is situated on one side of an embankment where the soil is liable to lateral movements, and is thus subjected to a one-sided load or pressure, care must be taken to secure a stable foundation, so that the pipe line will not be moved on its bed and broken. A retaining support should be placed at the side having the less pressure. It should be made with suitable material of proper height, width and weight, to transfer to the foundation the excessive lateral earth pressure, without danger to the stability of the pipe line.

Trenches should be kept free from water until the material in the pipe joints has hardened sufficiently so that the pipe line will be continuous and strong.

The stresses produced in pipe by the backfilling will differ according to the conditions of the soil. In self-sustaining soil it is possible to lay pipe at a considerable depth without producing excessive stresses. In soil which permits of lateral movement or which is water-carrying, special precautions are necessary to prevent undue pressure upon the pipes.

To protect pipe lines from unusual stresses all work should be done in open trenches. Tunneling should be prohibited except with the special consent of the engineer.

Pipe lines should be placed at such a depth below the surface of the street that dangerous pressure or impact cannot occur. If it is not possible to do this, special reinforcement is required.

Rock excavation should be made to a depth of at least 4 in. below the outside bottom of the pipe.

Width of trenches in earth should be sufficient to provide a free working space of from 6 to 12 in., exclusive of spurs and hubs, according to the size of the pipe and the character of the ground.

The width of trenches in rock should be sufficient to provide a free working space of 12 in. on each side of the pipe exclusive of spurs and hubs.

In every case there should be sufficient space between the pipe and the sides of the trench to make it possible to thoroughly ram the backfilling around the pipe and to secure tight joints.

If soil conditions and ground water require the use of sheeting, sheet piling and bracing, the trenches should be made correspondingly wider. The sheeting should be closely driven and to such depths as the soil conditions may indicate to be necessary for the stability of the pipes.

Steel sheeting may be used with advantage where the flow of ground water into the trenches is excessive and the stability of the foundation soil and of the sewer is affected thereby.

Where a trench for a proposed sewer or extension of a sewer terminates in rock, it should be excavated for a distance of not less than 5 ft. beyond the end of the sewer and in the direction of the proposed extension. The pipes and all other structures should be carefully protected from the effects of blasts.

II. PIPE LAYING

The laying of pipes in finished trenches should be commenced at the lowest point, so that the spigot end points in the direction of flow.

All pipes should be laid with ends abutting and true to line and grade. They should be fitted and matched so that when laid in the work they will form a sewer with a smooth and uniform invert.

It is necessary to use all possible care when shoving the pipes together, so that the joints will not be unnecessarily large.

Sockets should be carefully cleaned before pipes are lowered into trenches. The pipe should be so lowered as to avoid unnecessary handling in the trench. After the ends of the pipes have been sufficiently wetted, the hub end should receive upon its lower half a layer of mortar composed of one part of Portland cement to one or two parts of fine sand.

The pipe should be set firmly according to line and grade, and the joint carefully adjusted, filled with mortar and finished to a smooth bevel outside. The inside of the pipes should be then cleaned of dirt and mortar refuse. In small pipes the inside should be made smooth by a hand swab. Large pipes should be laid with block and tackle, and with bar and tongs.

Gasket and mortar joints should be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than ¾ in., and in one piece of sufficient length to pass around the pipe and lap at the top, should be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket should be saturated with neat cement grout. The remainder of the space should then be completely filled with plastic mortar mixed 1:1, and the joint wiped inside and finished to a smooth bevel outside.

Where butt or bevel joint pipes are used, the following method of joining is recommended: After a layer of mortar about 8 in. wide has been prepared at the joints, a wire netting is spread upon the same and covered with a layer of mortar about an inch thick. Upon this wire netting, which is embedded in the mortar, forming a bandage, the pipes are laid and adjusted according to line and grade. The bandage is then raised on both sides of the pipe, bound at the top, and covered with a layer of strong cement mortar at least 2 in. thick. The inside of the joint is finished in the same manner as specified for hub-and-spigot pipes.

The ends of pipes which enter masonry should be neatly cut to fit the face of the masonry.

No pipe or the cradle thereof should be laid or placed until the sub-grade of the trench has been tested and found correct.

In deep cuts, in high embankments, or in poor soil, it is recommended to use concrete reinforcement.

The smaller sizes of cement or concrete pipes should preferably have flat bases. If of sufficiently large diameter, they may be reinforced.

When mortar or concrete are to be mixed or placed in freezing weather the following precautions are advised: No concrete should be laid when the temperature of the air is below 24° F. When the temperature is between 24 and 32° F., and rising, the mixing water should be heated to a temperature determined by the engineer, or he may advise that one per cent of salt, by weight, should be added for each degree of Fahrenheit of air temperature below 32° F. Under such conditions other materials for concrete and mortar should all be similarly heated.

III. BACKFILLING TRENCHES

All trenches and excavations should be backfilled immediately after the pipes are laid therein, unless other protection of the pipe line is directed. The backfilling material should be selected and deposited with special reference to the future safety of the pipes. Clean earth, sand or rock dust should be used up to a level at least 2 ft. above the top of the pipe. This material should be carefully deposited in uniform layers about 6 in. in depth. Unless otherwise permitted, each layer should be carefully and solidly tamped or rammed with proper tools, so as not to injure or disturb the pipe line. The backfilling material for the remainder of the trenches should contain no stones over 10 in. in their largest dimensions. It should be spread in layers and thoroughly consolidated by tamping or otherwise as the engineer might direct. Stones which are used in backfilling should be so deposited through the mass that all interstices are filled with fine material.

Where the safety and stability of the pipe line and other structures render it necessary, sheeting should be left in place, particularly below the top of the pipe.

Where sheeting is withdrawn, all cavities remaining or adjoining the trench should be solidly filled. When the sheeting is left in place, all cavities behind such sheeting should be solidly filled.

For retaining backfilling temporarily, timber bulkheads may be used. They should be removed as the trenches are backfilled.

Puddling or water flooding for consolidating the backfilling is recommended only for sandy and gravelly materials. If this method is used, then the first flooding should be applied after the backfilling has been compacted by tamping up to the springing line of the pipe, and the second flooding during or after the subsequent filling of the trench. An excess of water should be avoided, in order to prevent disturbance of the earth under and around the pipe, and also to prevent an undue excess of pressure on the pipe.

Walking or working on the completed sewer, except as may be necessary in tamping or backfilling, should not be permitted until the trench has been backfilled to a height of at least 2 ft. over the top of the pipe.

Where a one-sided pressure exists, due to unbalanced loading, the filling of the trench should be carried on simultaneously on both sides and in such a manner that injurious side pressures do not occur.

In freezing weather backfilling should not contain any frozen lumps of earth below a level at least 2 ft. above the top of the pipe.

* * *

New Crucible Concern on Raritan River

Several men in the Raritan river district of New Jersey have incorporated the Crucible Company of New Jersey and are now making arrangements for opening a large plant near Perth Amboy. It is the intention of this company to manufacture crucibles of all kinds, as well as other products of clay and graphite. Operations will probably be started the latter part of the present month, more than sixty men being employed at the very beginning.

The company is capitalized at $200,000, the incorporators —all of whom are from Perth Amoby—being Louis H. Meade, John W. Olsen and Alfred H. Crowell.

The new company holds options on two large plants in Woodbridge township.

* * *

Porcelain Finishers Plan Social Events

Members of the Porcelain Finishers' organization of Mercer county, N. J., have made arrangements for a number of social events which will follow the "open" meetings this coming fall and winter. These affairs are the cause of much good feeling among the workers in the various porcelain plants. New members have been admitted into the organization and reports show that all the workers in the porcelain trade are busy at present.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

TWO IEDAS CONCERNING THE VALUE OF PUBLICITY AND HOW TO GET IT

IT IS PROBABLY TRUE that one respect in which the average brick manufacturer and dealer lags behind business men in other lines is his failure to appreciate the value of publicity. At least, this is true if he may be judged by his failure to secure all the publicity that is justly coming to him, and to brick in general. The salesmanager who is alive to the opportunities which are constantly arising in this connection will find that he very often has something of interest for the newspapers and, if he will only cultivate the acquaintance of the reporters who cover the building field, he will find no difficulty in handing himself and brick in general a friendly "boost" now and then.

A certain dealer, who has for several years been a member of a leading firm in the retail end of the trade, was once a newspaper man and he, therefore, appreciates not only the value of publicity but the way in which to get it. He has made it a practice, whenever he learns of anything interesting in the building field, to tip it off to one of his friends on the papers, thereby gaining their good-will. Accordingly, there appears an occasional item about his firm and the orders it has secured which might not otherwise have got into the papers. Besides these, he has stories sometimes which have a real news value, and these he never overlooks giving to the reporters. The result is that his firm is one of the best known in the city, and there is no question but what his constant but unobtrusive publicity work has paid the company good dividends.

THINKS ORDINARY BUILDING SIGNS ARE TOO SMALL

Another brick man, who has ideas of his own concerning the value of publicity and the way to get it, has got away from the more or less futile signs which were once used by his firm, in common with others, to announce on a building the fact that the firm had supplied the brick. These signs he noticed did not stand out at all prominently as compared with those posted by the plumber, the man who did the electric wiring, the builder, the heating contractor and others who desired to let people know about their share in the work.

"I had an idea that my brick ought to be advertised a little better than that," said this dealer, "and so I went to a sign painter and got a few signs painted which I thought would give us something like the credit to which we were entitled. I had them made four by six feet, with our name on them in letters eight inches high. On every job where our brick was being used I had these signs placed—not in some inconspicuous position where no one could see them—but on posts, right at the front of the property. Nobody objected, nor had any right to and, I might say, that nearly every dealer in the city has copied our idea, having his signs of sufficient size to be read without glasses.

"I refuse to give any opinion as to what would happen if every sub-contractor and material man on a building adopted the same idea and used a big sign, but I claim that my sign is seen and read where these little tin affairs you usually see are not, which is the point I had in mind."

* * *

How Is It Going to Look?

The principal advantage which the merchant selling ready-to-wear clothing has over the tailor is that the former can always answer the question, "How is it going to look?"

The man who is selling face-brick or any other clay product which is used with its appearance largely in view should bear this in mind in calling on owners. The architect is able to visualize results, and can appreciate the strong points of a brick without having to see it in a building, altho the panels in the brick dealer's showrooms are often suggestive even to the expert designer, especially when it comes to working out color schemes by means of mortar effects.

But how may the owner be impressed with the beauty of a brick, so that when he takes up with the architect the question of specifying materials, he will be likely to say, "And let's be sure to have Radoba brick?"

One of the ways is to use a portfolio of photographs of completed buildings in which the brickmaker's materials have been used. These will give an excellent idea of the effects which have been secured. A notation below the photograph should indicate exactly the brick used, as well as the cost.

The use of photographs incidentally serves another important purpose. Besides indicating the appearance of the brick in the completed building, it also takes advantage of the good-will involved in the use of this particular material by the owner. The pictures can be selected not only with reference to the beauty of the building, but also the standing of the owner, and when the dealer says, "This is Mr. Moneybags' new $50,000 residence," he knows that his prospect is going to be influenced by the prominence of Mr. Moneybags, as well as by the attractive appearance of the building itself.

In connection with the general proposition of showing the prospective builder how the brick will look when it is laid up in a wall, many successful salesmanagers employ an automobile continually for the purpose of taking prospects all over the community, looking at houses where his brick has been used. These visual demonstrations are usually effective, and impress the prospects with the fact that they cannot make a mistake by following the example of so many other people.

The average person always feels safer when following the line laid down by someone else. Few people care to be pioneers, so that when a dealer "asks the man who owns one" by the indirect method of showing photographs of buildings and the buildings themselves he has a good chance to impress prospects who can hardly be reached by mere technical arguments regarding the quality of his product.

* * *

The Peril of Vacillation

You may remember the story of the woodman who found a young man freezing to death out in the forest. As he took him to his hut, the stranger kept blowing on his numbed hands.

"Why do you do that?" the woodman asked.

"To warm my fingers," was the reply.

When the young man began to blow his soup, after they sat down to a simple meal and explained that it was to cool it, the woodman turned him out, feeling that he was dealing with someone not altogether natural.

Certain it is that people dislike to have salesmen blow hot and cold, in the sense of changing their position with reference to the goods which they are selling. The plan of describing everything shown in superlatives and endeavoring to create a demand for something, without knowing just what, is never so successful as that of really seeking to select the item in the line which is best suited to the requirements of the customer, and then selling him on that.

"When I start a solicitation," said a salesman who has been unusually successful in the distribution of high-grade face-brick, "I find out first about what my customers like, and next about what the house is going to cost. I realize then the limitations as to price which will certainly be enforced, and pick out a brick which will fall within the limit. There is no use getting a customer interested in a product which is out of line from the price standpoint.

"Having concluded what is best suited to the job and to the financial restrictions which will be imposed, I begin talking up the brick that meets these requirements, concentrating on that. I show by the panel in the display room the attractive appearance that is secured, and I refer to the numerous architects who have specified this particular brick. They may have specified various other brick as well, but the point is to prove that this special material is well thought of. By specializing in this way, and not scattering my fire, I leave a definite impression of value upon the mind of the prospect, and come much nearer to getting a satisfactory conclusion than if I had merely discussed my line in general."

This salesman keeps a card index of prospects, showing the name of the owner, the architect, the character of the job, the estimated cost, when bids are to be taken, and so forth, while the dates and results of solicitations are also set down. One of the points which emphasizes in work of this kind is to note immediately the number of the brick which is being featured, so that on successive calls there will be no question concerning just in what the customer is to be interested.

* * *

Look After Your Teams

The average team carrying brick is a poor advertisement for the concern which it represents.

While it may be true that the brick manufacturer is forced to use hired teams to such an extent as to preclude the maintenance of any very severe standards in respect to the appearance of the teams, it is also true that it is possible to regulate those which are owned by the concern.

The horses or mules in use, the harness, the wagon, should all look as well as possible. Some outfits which the writer has seen engaged in transporting brick have been in the last stages of dissolution, apparently, and it was a wonder that they were able to get their contents to destination. It is significant, by the way, that brick men with teams of this kind usually leave off any marks of identification, realizing rather clearly that it would not be a good advertisement.

Did you ever notice how ice manufacturers advertise themselves by their teams? Concerns in this line seem to appreciate the full value of the publicity emanating from the use of fine-looking horses, shining harness and well-painted wagons. Of course, ice is used in connection with food, and there is good reason for care in connection with cleanliness, but as a general proposition the idea is worth borrowing.

A brick manufacturer recently secured a hurry-up order from a contractor in a suburban town thirty miles away. He might have shipped the brick by freight, but he knew that it would take a long time to get the material there. So he called in the manager of a motor truck concern which specializes in long-distance deliveries, and arranged for the brick to be sent that way.

When the truck was started, it carried banners announcing the fact that it was carrying the brick of this concern to the town in question, thus advertising the progressiveness of the manufacturer, both in getting the outside trade and in using a motor truck to make the delivery.

This was unquestionably valuable publicity.

Good teams, whether used for local deliveries or not, would furnish similar advertising, and would incidentally render better service, investment considered, than those which are purchased and operated under the impression that "any old thing" will do for the brick business.

* * *

Don't Get Mad at the Boss

It's human nature to feel sore when you're told disagreeable things about yourself, but it isn't human sense to keep up that soreness. If you have a boss who tells you things straight from the shoulder don't discourage him by quitting or holding out a sorrowful grouch. The way to stop his hard knocks is to stop the cause. He's trying to get you in line and make you fit. If you hadn't the stuff in you to get in line, ten to one he wouldn't waste his nervous force.

A lot of us are never really tried out till we start working under the leadership of a real business man. Then our second schooling begins. To flare up and display a rebellious spirit is silly. The man is putting you right and the thing for you to do is to see his point and act accordingly.

Get a line on him, so to speak, the same as you do with a good customer. Make your ideas work in harmony with his. Perhaps there are not two worth-while employers in business today who act and think alike, or whose methods are alike. By conforming to such ideas in a general way you get his good will and his confidence.

This does not mean that you should be without initiative or that you should have no ideas of your own. It means rather that you should avoid antagonism and cultivate a full sympathy with the man who is endeavoring to make a success of his business.—*"Candy."*

¶ *Are You Laying Awake Nights Trying to Think of How You Can Solve Your Lamination Problems? Read the October 17 Issue.*

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Why Waste Man Power?

Walking along the other day, I watched three men hoisting a piano to a fourth floor via the block-and-tackle route. The pulleys at both ends said, "Squeak, squawk, whee." "Well," I said, "those fellows are just ordinary laymen. They don't know anything about machinery and have never heard of efficiency." Then I went on my way to the power plant, the ash-handling system of which I had been told to look over. There I found a block-and-tackle ash-handling "system" with two men straining their backs pulling, and the pulley block hollered just like the piano hoister's. I went out into the "back yard" and there found a fireman pushing a wheelbarrow of coal into the boiler room, and the revolving wheel sang the same tune—"Squeak, squawk, whee."

Near the same building I found two men loading some heavy pipe onto a car. They were using a hand derrick on which nearly everything squealed from the mast pulley to the dry wooden handle on the crank. Inside the power house, where steam is employed to do the heavy work, I could hardly hear a sound. Every joint was carefully wiped on the outside and oiled inside. Shafts were bathed in oil and efficiency was kept at its maximum constantly.

I have come to the conclusion, therefore, that we engineers are inconsistent in a few things, and this is one of them. Man-power is expensive. Nobody questions that. Yet we do not make much of an effort to increase the efficiency of man-power. One man could have lifted the piano easily with an efficient tackle. The ash-handling system could have been made so easy-working that it would be almost a pleasure to hoist the ash cans. A four-wheeled car on a track, instead of the wheelbarrow, would save the fireman's energy so that he could do more efficient firing at the vital point. And so forth. Power from coal is cheap in comparison. Why are we so careful in keeping the engine at top-notch efficiency and not the man?—*S. F. Wilson, in "Power."*

* * *

Gravity Elevator With Unusual Brake

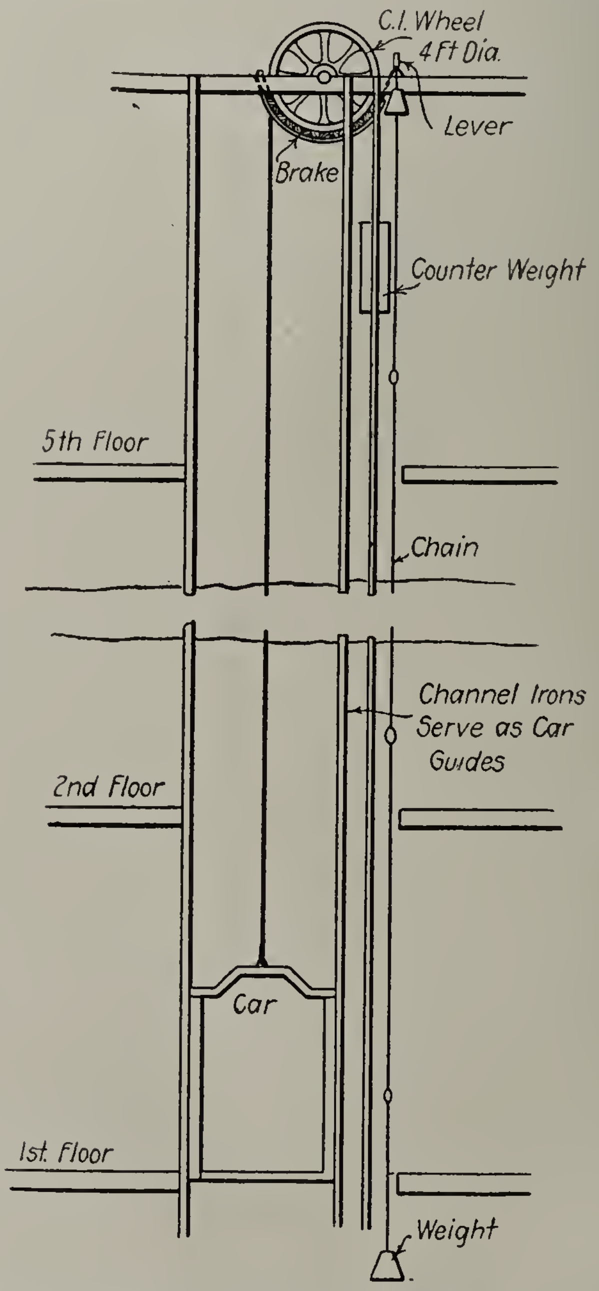
A gravity elevator of singular design is shown in the accompanying illustrations. Suitable for use in the small rural brick and tile plant or in the five-story structures commonly seen in connection with plants of a more pretentious size, it represents a device that may be of value for elevating or lowering purposes under practically any conditions.

Much the same principles to be found in all gravity elevators may be seen in this one, with the exception of the brake and the means of operating it.

Slung under the lower half of the wheel upon which the car ropes are run, is a steel plate, as shown in the drawings, to which is attached several blocks of wood. To the free end of this steel sheet is attached a chain which in turn, is fastened to a lever-bar running at right angles to and in front of the wheel. Suspended a few inches from this lever at one end is a small weight, while at the other ends hangs a chain that goes to the bottom of the shaft, to the end of which a weight, similar to that above, is attached. Between the two ends, and to the right of the wheel is a support for the lever. The pulley, or wheel, is divided into two parts, one upon which the ropes travel and the other for the accommodation of the brake.

One end of both ropes is attached to the top of the car while a heavy counterweight is carried at the other end.

Thus, when the chain attached to the lever, hanging down alongside the car, is pulled up, the weight on the lever at the top is dropped and releases the pressure of the wooden blocks against the wheel, making the car move upwards if unloaded and downwards if loaded. Unless some means of holding the chain up is provided,

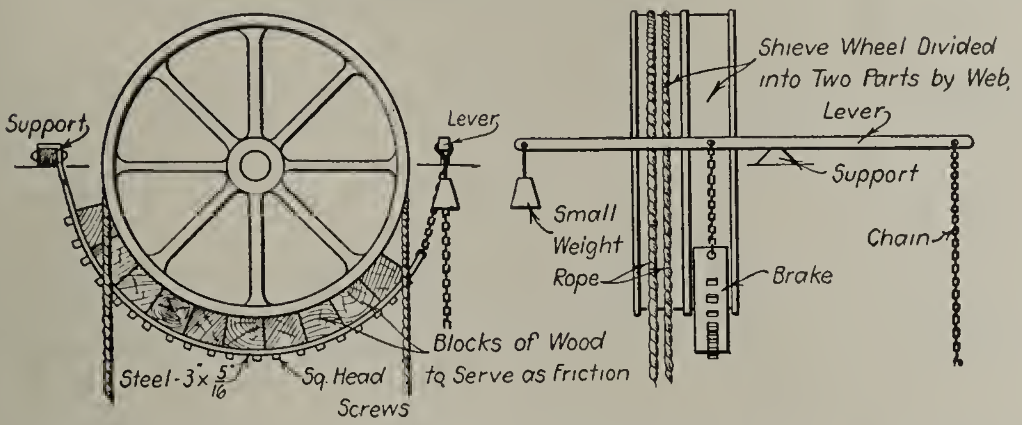


An Upward Pull on the Chain at the Right of the Shaft Operates This Gravity Elevator, Which is Controlled by the Unusual Brake Shown at the Top of the Drawing

when it is released the weight at the bottom will set the brake, since it is heavier than the top weight. The car is always secure for that reason and will not move until it is released by an upward pull upon the chain.

The counter-weight is guided by thin strips of hardwood running in a groove cut in both sides.

Should it be desired to run the control chain down thru the car, slight changes are necessary. Instead of having the lever at right angles and in front of the wheel, place it above and parallel to the wheel. The brake-chain then is carried up in front of the pulley while the control-chain runs down behind it and thru the car. Of course, it will be necessary to provide a support above the wheel to act similarly to that in the present arrangement.



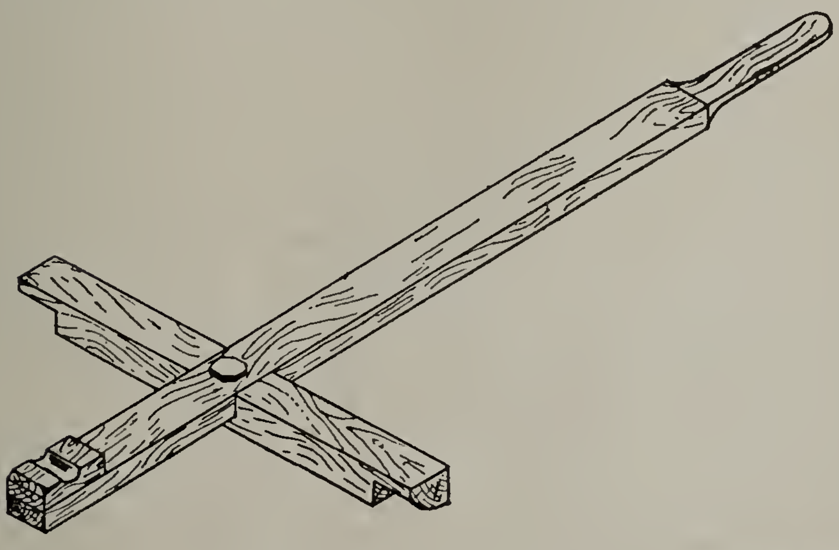
Detail Drawing of Top of the Gravity Elevator, Showing the Construction of the Brake and the Shieve Wheel, and of the Lever That Controls the Action of the Brake

⁂

More Drier Car Brakes That Give Results

Since the publication of an item upon the construction of a drier car brake, which appeared in this department of the September 5th issue, two more designs of devices used for this purpose have been received.

As was stated in that item, withdrawing a car of dried ware from a tunnel is no easy operation. The grade of the tracks in the drier is usually sufficient to start the cars in motion toward the discharging end when one or more cars of dried ware is withdrawn. Unless some method of checking their advance, and stopping them when desired, is used, the chances for heavy loss in broken ware are many, and no assurance is provided that the runaway train will not smash into some part of the building or machinery and cause much greater damage. For this reason, it is wise to be familiar with several devices in use for stopping the cars—devices that are capable of overcoming the great momentum that is acquired by the heavily-laden equipment.

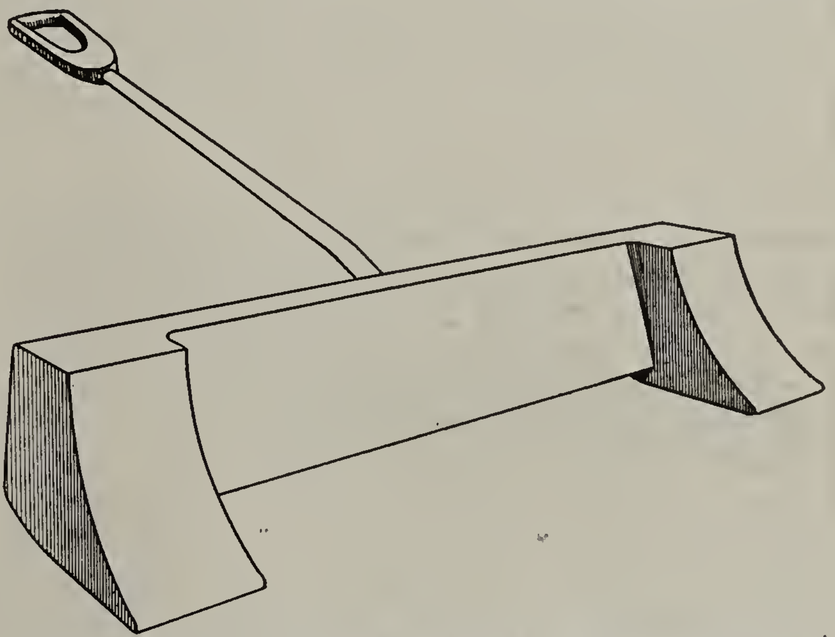


Brake That Stops Drier Car by Catching the Axle in the Groove on the Front Block

Possibly the simplest of the two designs is one that is being successfully used on a Pennsylvania plant. The drawing is so plain that little need be said in the way of explanation. Two two-by-fours are joined together in the shape of a large cross. The longer of the two pieces extends under the car to the front axle and in front of the car far enough to be conveniently handled by the drier-man. Upon that end which goes under the car is placed a block with a groove cut in its surface to provide a firm place for the axle. The end which the man handles is shaped into a handle.

The shorter of the two pieces is just long enough to span across the tracks, a small piece being cut for a distance of about three inches from both ends (a trifle more than the width of the rail) from the lower, front section, and the surface left is rounded off. This provides rocker surfaces on each end of the brake to fit both tracks so that when a downward pressure is exerted upon the handle, the car is either raised or stopped—and due to its great weight it is seldom raised.

The other device, shown in Fig. 2, consists of the handle of a discarded shovel and a piece, or pieces, of wood the width of the track. The two ends of the block that spans the tracks protrude out from the back piece and are shaped to fit the wheels, having just the right width and shape so that they may fit both the flat part of the wheel and the flange. The bottoms of the side pieces rest upon the rail and at the back is cut a slight curve. Thus, when the brake has been placed against the car wheels and the friction upon the rail is not sufficient to overcome the motion of the cars, more pressure can be exerted by pushing down upon the shovel handle. It is questionable, however, if this will be necessary. The shape of the block is such that it grips almost a quarter of the wheel—that quarter in which is centered both the downward pressure of the load and the forward pressure. The long flat surface resting upon the tracks, together with that upon the wheels, is, in most cases, sufficient to overcome the opposing forces and stop the cars.



Another Style—This Brake Operates Directly Upon the Wheels of the Drier Car, Bringing It to an Immediate Stop

A variation of this device that may be used to advantage when the friction need not be so great is made by attaching the shovel handle to but one of the two shoulder pieces of the above brake. This is easier to handle.

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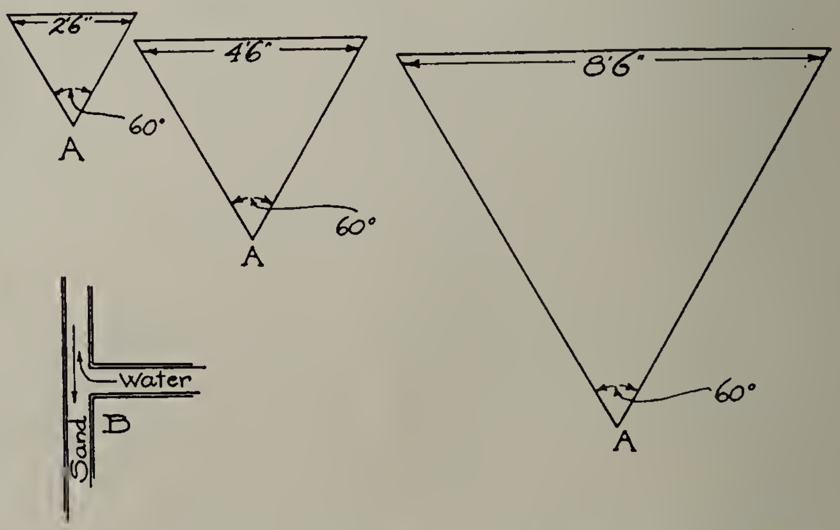
Wants to Remove Iron Pyrites from Clay

787. *Philippine Islands—As the white clay I am using in my pottery contains iron pyrites, will you kindly advise me regarding an effective method of separating this undesirable matter from the clay?*

If this clay, writes a reader, was passed thru a set of cones such as is shown in the accompanying illustration, furnished with an upward flowing stream of water, there would be a complete separation of the pyrites or other coarse material in the body of the clay. These cones are used to a great extent in the separation of sand and slimes in the milling of gold and silver ores. This reader states that he has tried them on a small scale for the washing of clay and has found that they work all right, except that a large amount of water is necessary. The overflow can be run into settling tanks. With a set of cones, having different diameters and different water flow, a very good clean clay will be produced and, as long as a steady flow of water is fed to the cones, it will not be necessary to have any labor connected with them but, if the flow is irregular, they may choke.



Cone Arrangement Often Used in the Separation of Sand and Slimes in the Mining of Gold and Silver Ores, but Which is Also Adaptable in the Removal of Pyrites from Clay

By way of explanation concerning the construction of the cones shown in the accompanying illustration, it might be said that this sketch was taken in general from Vol. I of Richards' "Ore Dressing," with a few changes. The diameters of the cones at the top are 2 ft. 6 in., 4 ft. 6 in. and 8 ft. 6 in., respectively. They are all built with a slope of sixty degrees. A metal connection (B) is made at (A), so arranged as to allow an upward current of water with a vertical outlet, for the falling sands or any other heavy materials. The thoroly mixed clay and water is delivered to the center of the top of the smaller

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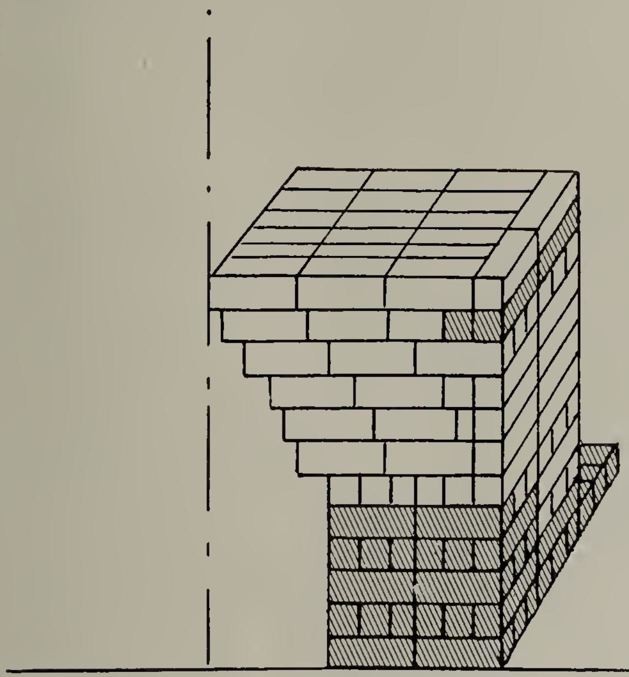
cone. The overflow from this cone is delivered by a circular launder to the center of the top of the second cone. The overflow from this cone is passed on to the third cone. The overflow from the last cone is sent to settling tanks and the underflow from all three cones to the waste dump. In simply removing pyrites from clay it would probably be only necessary to use one of the larger cones instead of a set of three. The upward current of water should be delivered to the cone with a steady flow.

This answer is in addition to the one published on page 321 of the August 15th, 1916 issue of "Brick and Clay Record."

⁂

Burning Drain-tile in Up-draft Kilns

788. *Washington—We are burning brick in an old style, up-draft kiln. Could we burn drain-tile above the arches about four courses? The arches are sixteen courses high. We would set the tile from the sixteenth to the twentieth course and then put on six courses of one-foot drain-tile, or we could make low arches and burn a larger number of tile in the kiln. The demand is greater for drain-tile in our section than for brick and we do not have the capital to invest in a round, permanent kiln. Therefore, we would like to continue in some way to burn the tile in the scove kiln, using slab wood as fuel.*



Method Followed in Setting Common or Hollow-brick in the Arch of a Scove Kiln When Drain-tile Are to be Burned. Shaded Portions Indicate Where Burned Brick Have Been Used

Altho the above question, together with answer, has appeared in the past three issues of "Brick and Clay Record,"

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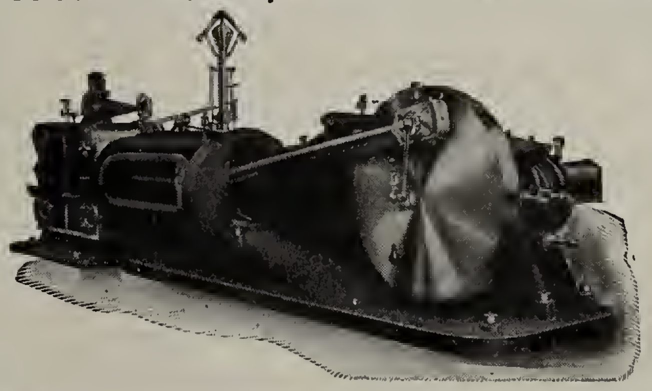
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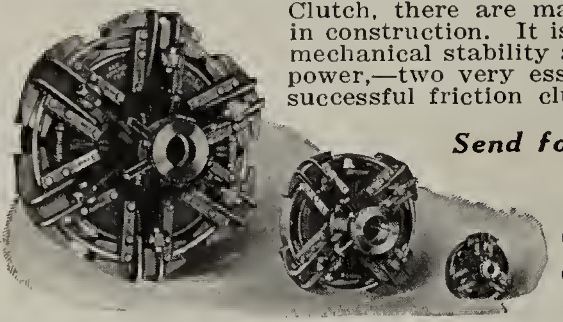

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particular attention is called to the answer in the September 5th issue, which was written by Robert W. Jones, assistant in Economic Geology, connected with the office of the New York State Geologist at Albany.

Mr. Jones writes us under date of September 18th, stating that on a recent trip, he passed thru the yard referred to on page 428 of the September 5th issue and was able to get further information concerning the burning of drain-tile in up-draft or scove kilns.

In preparing the clay for the ware, he says it is necessary to have a water content of from thirty-two to forty-four per cent. and add about thirty-three per cent. of sand. This same mixture is used for the common-brick, drain-tile and also the hollow brick. The shrinkage of the raw clay varies from 15.5 to 18.5 per cent. and burns to a light brown at 980 degrees centigrade. It vitrifies at about 1,100 degrees centigrade.

The accompanying sketch will show how both the common and hollow-brick are set in the arch. During the past season at the yard in question, entire kilns were built from the ground up with hollow-brick in a great many cases. These kilns were finished on the top with a layer of commons burned and laid flat as close as possible.

In the setting of the drain-tile the length of two arches at each end of the kiln is set with common or hollow-brick. Sixteen courses from the ground the drain-tile are started and above the tile are set five courses of common-brick, if possible. If commons are not available for this purpose, hollows are used. The kiln is set fifty-five high, including one layer of burned flats set close. A distance of five lengths of commons or hollows is allowed on each side of the kiln between the drain-tile and the sides. This is followed by one layer of brick and daubed over with mud.

⁂

Wants to Prevent Cross Lamination

793. *Illinois—We are making a stiff-mud, machine-made fire-brick, using an old goose-neck sewer-pipe press and a semi-automatic cutting table. We are getting excellent results, except that the brick show a cross lamination—that is the 4½-inch way of the brick. We are running our column flat, 9 inches wide by 2½ inches high and set the wires in our cutting table 4½ inches apart. We will be very grateful if you can tell us a way out of this difficulty which is apt to cause us a great deal of trouble, especially when the brick are exposed to slagging action.*

The above inquiry, together with an answer, was published on page 426 of the September 5th issue of "Brick and Clay Record." Since that date one of our readers—D. H. Applegate, Jr., of the Crescent Brick Company, Red Bank, N. J.—has written us offering his opinion as to how our correspondent's trouble may be remedied. Mr. Applegate's letter, which is exceedingly interesting, follows:

"In your September 5th issue I notice an inquiry from an Illinois reader about lamination. In addition to the answer given, I wish to submit the following:

"Your correspondent states that he is using a die 9 by 2½ inches and is cutting his brick 4½ inches wide. The flow of the column of clay is nearly always slower at the surface where it is in contact with the die liners than in the center, due to the fact that the friction between the clay and metal is greater than the friction of the clay by itself. The slow-moving surface tends to retard the clay next to it with the result that for a depth of perhaps one-half inch, the clay shows the effects of dragging. At the corners of the die where there are two surfaces adjacent, the dragging

effect is much more pronounced and, in a case such as is above mentioned, where a very narrow opening is used, the two corners being near each other, the whole side of the column is affected.

"If your correspondent will try a die measuring 9 by 4½ inches and cut his brick 2½ inches, I think he will find an improvement in the column as it issues from the die, inasmuch as the corners will not be near enough to each other to exert a concerted action in retarding the sides of the column.

"Your correspondent does not state whether he uses a dry or a lubricating die, but if it is the former, he will find that a good form of lubricating die with the proper lubricant will be of considerable assistance. However, if he already has a lubricating die, it may be that it does not do its work properly or that a better lubricant could be found."

The Semi-Monthly Trade Review

CARRIED ON THE CREST of the past eight months' tremendous activity, national building for September maintained a very healthy condition. The momentum that had been gained from previous months was sufficient to lift activity across the usually dull periods of summer with little if any slackening of pace, and now the advent of fall with its stimulating effect bids fair to continue, if not increase, the more than satisfactory records.

LABOR—THE TROUBLESOME FACTOR—REIGNS

However, while in the great majority of cities and towns building is in such an optimistic state, a few of the larger centers are grappling with problems that tend to materially reduce the amount of their construction work. Labor difficulties are still the chief offenders, their stagnating influence working havoc with New York's building progress and that of other large cities. Thruout Ohio the same toxic has been injected into the state's prosperity with the result that not only building, but practically every line of work requiring common-labor, has been affected to a dangerous extent.

The transient power that has been prodding labor on to such unusual and unreasonable demands, the spectre of the munition-plant wage for the brick plant, or constructional work, has left its mark, indelibly, upon the past year's record. It will not be long, however, before the pendulum swings in the opposite direction, or at least until normal conditions are re-established, possibly

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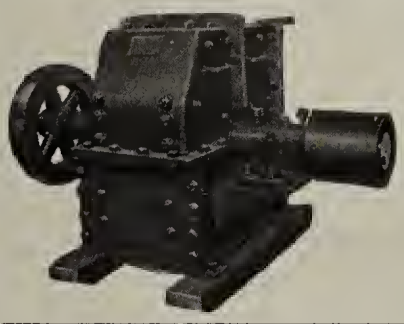

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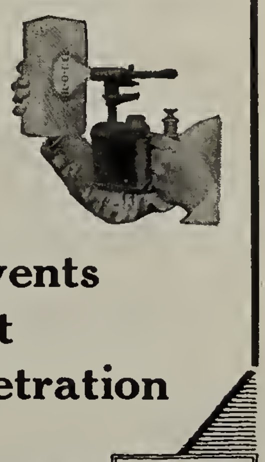

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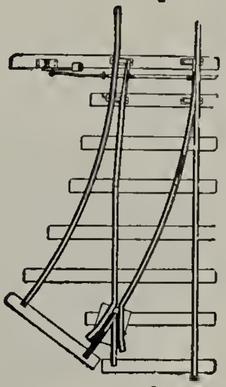

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PROSPECTS FOR FALL BUILDING GOOD

If we may judge the conditions to prevail in building for the next few weeks by the magnitude of the current business transactions, the outlook is exceedingly satisfactory. National bank clearings, reflecting the general condition of business, are at present forty-four per cent. more than those obtaining at this time last year. The price of building materials offers a substantiation of this prediction, in that little if any opportunity for an appreciable reduction in current prices is foreseen, leaving no justifiable reason for postponement of operations on the ground of high prices.

PACIFIC COAST ENJOYS ACTIVE BUILDING

Brick manufacturing plants on the Pacific Coast are operating to capacity. Notwithstanding the lateness of the year, many new enterprises have been launched that are absorbing large quantities of material, resulting in a particularly strong market for clay products. Common-brick is selling at from $8.50 to $10 per thousand—a satisfactory price. The rapidly increasing amount of burned clay entering into the construction of the newer buildings presages a revival of building where brick and terra cotta will be employed in larger proportions. One encouraging result of this active demand is the possibility that many of the plants supplying this market will be enlarged and their capacities increased, consequently strengthening the industry. Extension work in this direction has been unduly slow during the past few years, due to the fact that the demand made upon the plants was not even sufficient to absorb their output.

A pleasing increase in the call for face-brick in the San Francisco market is noted, while the erection of several large office buildings has caused a big spurt in the sale of terra cotta. Fire-brick has succeeded in beating its record for the previous month and is showing great activity. Paving-brick, on the other hand, is causing no sensations because of large sales but is maintaining a normal, even stride.

The Northwest reports nothing unusual, its building "boom" having long since reached its height and conditions having again settled back to normal.

DETROIT PROSPERITY TEMPORARILY THREATENED

Coming into the eastern section of the country, we find that even in the city of Detroit, Mich., where this year's building has so completely exceeded all previous records, there is possibility of a slack. This is not due to a lessening demand for new constructional work, but rather, it may be traced to labor troubles. The shortage of common labor is restricting building activities considerably. However, a number of large operations are reported for the near future which will offset any temporary set-back.

CINCINNATI BUILDERS HAMPERED BY LABOR SHORTAGE

This shortage of labor in the vicinity of Cincinnati, Ohio, has been credited with the postponement of several good-sized building jobs. Those closely in touch with the local situation contend that contractors are hampered to a great extent in handling their jobs, and that prospective builders, who know of the conditions, are averse to starting work which might be delayed on account of this factor. Notwithstanding this, however, several big jobs have been scheduled for early letting and, as residence work has picked up heavily lately, there is liable to be no great scarcity of work during the winter months as compared with other years.

SHIPPING TRADE IS LIFE OF LOUISVILLE BUSINESS

Louisville continues to be a poor market for brick and other clay products. There is a good amount of small residence work in the city, and deliveries on contracts made several months ago are still going forward. Were it not for the shipping trade, however, the Louisville market would not be reporting as favorably as it is. Most of the manufacturers state that they are shipping steadily in large quantities and that the orders from the smaller towns are what has been and still are keeping their plants running on full time. Another influence that is developing the rural trade and causing burned clay to find a more permanent berth upon the farm and in the small towns, is the construction of good roads thruout these districts, lessening the problem of hauls from the depot and opening up this market thruout the year.

Building in Boston, Mass., is unusually active and the demand for brick is consequently heavy. New York, however, is in the throes of a labor fever that has practically crippled its building and will continue to do so until some remedy is applied.

⁂

IN the WAKE of the NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

John L. Jackson, president of the Grande Brick Company, Grand Rapids, recently suffered a great bereavement in the death of his only son.

J. C. Corbin, formerly with H. Gerlock, Huntington, Pa., is now head foreman of the Federal Refractories Company's plant at Alexandria, Pa.

William H. Hoagland, general manager of the Claycraft Brick Company, Columbus, Ohio, left late in September on an extended automobile tour of the East.

R. O. Cosler, representing the Darlington Brick and Mining Company of Pittsburgh, Pa., was a visitor in Columber, Ohio, recently. He reports a good demand for his company's product, especially in the Middle West.

W. D. Brickell, president and treasurer of the Ironclay Brick Company, Columbus, Ohio, departed early in September on an automobile trip, which took him over the National Highway to Washington, D. C., thence north to Atlantic City and New York, and from there to the White mountains and New Hampshire points.

W. B. Goldsberry has recently been made salesmanager of the Fouke enterprises at Texarkana, Ark., which include the Texarkana Brick Company. Mr. Goldsberry goes to his new position backed by many years of experience and expects to accomplish much in the marketing of this company's products.

At a recent meeting of the directors of the Purington Paving Brick Company, Galesburg, Ill., G. P. Hoover, vice-president of the Harris Trust and Savings Bank, Chi-

Boss Ten Hour DRYER
The only tender clay dryer on the market

Boss System of BURNING BRICK
Will easily cut your present fuel bill half in two

COMMON SENSE APPLIED TO
Drying ORIGINAL Boss SYSTEM Burning
Write today for a catalog
JOHN C. BOSS COMPANY
Monger Building, - Elkhart, Indiana

The Paving Brick Man Knows

There is always a road in the country that is hard to keep up—heavily traveled and the cause of complaint.

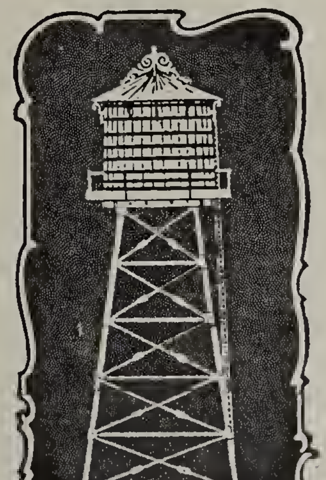
You will know the remedy if you will visit the demonstration that is to take place at Paris, Illinois, October 6. There will be a great many road people present and they will carry home more information and more satisfaction with reference to road building than you have been able to obtain at much greater time and expense.

You are all invited
Come and see for yourself

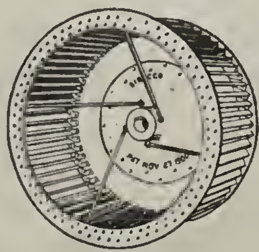
National Paving Brick Manufacturers Association
Will P. Blair, Secretary
Engineers Building, Cleveland

The "Rust Special" Clay Feeder
is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



"Tanks With a Reputation"
The unequalled serviceability of the CALDWELL CYPRESS TANK is because of its unequalled quality of materials and construction. We use only the "everlasting" cypress from the Louisiana swamps, that outwears and outlasts every other kind of tank wood, being practically as durable as steel. These tanks are hooped with such care and precision as to be absolutely tight, not for a season but for an indefinite number of years. Caldwell construction makes leaking impossible, and repairs unnecessary. Investigate the Caldwell tank and you will take no other. Ask for illustrated catalogue.
W. E. Caldwell Co., Louisville, Ky.
[Incorporated]



"SIROCCO"

The Power Saver

A "Sirocco" Fan—compared with older types—saves enough power to pay for itself in a short time—then keeps right on saving.

Let us send you "The Brick Dryer"—Book No. 13A.

American Blower Company
Detroit, Michigan
Branches Everywhere

The House of Taylor

IN THE HEART OF THINGS

600 Rooms
400 Baths

Hotel Martinique

Broadway, 32d St., New York

125 pleasant rooms, with private bath, facing large, open court

$2.50 Per Day

157 excellent rooms, with private bath, facing street, southern exposure

$3.00 Per Day

Also attractive rooms from $1.50.

The restaurant prices are most moderate. Equally convenient for amusements, shopping or business. One block from Penna. Station.

cago, and W. G. D. Orr of the Purington company, were elected to the board to succeed the late P. T. Walsh and A. D. B. Howell.

C. W. King, manager of the Central Connecticut Brick Company, New Britain, Conn., narrowly escaped serious injury recently when his automobile collided with another machine owned by Alex Helun, in New Britain. Accompanying Mr. King at the time were his wife, daughter and a guest, a Mrs. Wilcox of Meriden. Mrs. Wilcox was thrown out of the machine and severely injured.

Allan Ross Raff, formerly located in the Greenwood building, Cincinnati, Ohio, has moved to the offices of the Ironclay Brick Company, Ruggery building, Columbus, where he will act in the capacity of salesman for that concern. He is also special agent for the New Jersey Terra Cotta Company of New York, N. Y., the Matawan (N. J.) Tile Company and the Ohio Fireproofing Company of Nelsonville. Mr. Raff reports a good demand for all forms of clay products during the present fall season.

Henry H. Titsworth of Brazil, Ind., president of the Clay Products Company of Indiana, was in Columbus, Ohio, recently, consulting with William G. Benham, vice-president of the R. L. Dollings Company. The Clay Products Company, whose stocks are being marketed by the Dollings Company of Indiana, a subsidiary of the Ohio company, furnishes large quantities of conduit to the Bell Telephone Company. Mr. Titsworth is returning from New York, where he closed a big contract for telephone conduit. He says that more and more cities are demanding that all wires be placed under ground and that the Bell company is doing this as rapidly as possible.

Alabama

Many inquiries are being sent to the Secretary of State, Alabama, regarding some newly discovered deposits of supposedly high-grade pottery clays. It is planned to publish a booklet upon this subject, which will give the necessary information, to send out in response to these inquiries.

California

J. H. Carey, the owner of a brickyard at Richmond, Cal., has been awarded $17,000 as a settlement in a $50,000 damage suit he recently brought against the city of Richmond. Mr. Carey alleged that his business and property were damaged by the construction of a highway leading to the outer harbor.

The McNear Brick Agency's plant has been very busy on account of recent large orders, including the contract for more than two million brick for the Southern Pacific building. W. W. Dennis states there has been a scarcity of labor at the yard. The plant has a capacity of twenty million brick annually.

The mineral output of California for 1915, according to a recent official report, amounted to $96,663,369 in crude materials. There are forty-nine different mineral substances listed in the report. Of the fifty-eight counties in the state, all but two contributed to the total. Exactly 157,886 tons of pottery clay are included in the list. The number of brick produced was 180,538 thousand.

The Hamilton Decorative Tile Company of San Diego, Cal., is to extend its business by erecting a new plant on a hundred-foot lot on Venice boulevard, Culver City, Cal. A suitable building with a fifty-foot frontage is to be erected. The company's product is much in demand for fireplaces, mantels, bathrooms and so forth. The company also plans to extend the variety of its products.

A. F. Lindgren of San Francisco, the general contractor who has the contract for erecting the Southern Pacific building on Market street, has not yet announced the contract for the face-brick to be used in the building, but the terra cotta, valued at $63,000, is to be supplied by Gladding, McBean and Company. This concern will also furnish the roofing-tile. The Funston Clay Products Company has been given the contract for the terra cotta partition tile.

About two hundred members of the Pacific Coast Horticultural Society were the guests at the Garden City Pottery Company of San Jose, Cal., on Sunday, September 10. Manager Raymond illustrated the old-time method of making flower pots by hand and the modern method. The company has installed the most improved pottery machinery and the plant is well lighted and clean. The guests were served with a chicken dinner at 1:30 p. m. and otherwise entertained. The company makes a large line of stoneware as well as flower pots.

Gladding, McBean and Company, besides its Southern Pacific building contracts, has been awarded the order for the terra cotta to be used in the new Santa Fe building at Second and Market streets. The same concern is to supply the terra cotta for the new Yolo county court house, and the terra cotta and face-brick for the Farmers' and Merchants' Bank at Stockton, Cal. Gladding, McBean and Company has sold the remains of the old Carnegie brick plant to the United Wrecking Company. F. C. Davis of the company's face-brick department is expected back from a trip to New South Wales by the last of September. He has been in Australia investigating market conditions with relation to California clay products.

Colorado

A sample of Western advertising activity on the part of a clay products manufacturer has recently been discovered and we are pleased to note that twentieth century methods are being employed by the Longmont (Colo.) Brick and Tile Company to develop a fertile field. This company manufactures, to quote from one of its ads, a wide assortment of variously colored rough-textured face-brick, drain-tile, hollow building brick and tile, stiff mud brick, and silo tile, and is enjoying a very prosperous business.

Connecticut

Connecticut brick manufacturers see prospects of keeping their yards open until the ground is frozen because of the continued influx of orders. Talk of closing down for the winter, which often is heard before the middle of September, is lacking this year. Hardly a manufacturer has even considered when he will stop making brick. Many plants were late in getting started because of the rainy spring and labor difficulties, so that it will be necessary to keep running longer than usual in order to reach the normal output which will not begin to take care of all orders. In many cases yards are being operated day and night.

District of Columbia

The Washington (D. C.) office of the Hydraulic-Press Brick Company reports that the order to furnish some 300,000 Colonial face-brick for the new Mt. Vernon Seminary, an exclusive girls' school in that city, has been awarded to

THINK of the name of almost any prominent paving brick manufacturer, and you'll also think the name of a user of Marion Shovels. The Bessemer Limestone Company, for example, uses "Marions" to dig the shale for Bessemer Block, which of course keeps a whole battery of them busy.

"MARIONS" DIG THE SHALE FOR EVERY "BESSEMER" BLOCK

—and that isn't all, either, for "Marions" do the work better and cheaper than any others, and with a more uniform mix of shale.

Firms like Sayre & Fisher Company, Purington Paving Brick Company, Metropolitan Paving Brick Company, and scores of others of equal prominence, testify that "Marions" are surprisingly cheap to operate and require almost no repairs.

We'll gladly send our special Brick Makers' Book No. A120 without obligation, if you say so.

Marion

We Make Excavating Machinery of Every Description

Branches:
Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY
Established 1884
MARION, OHIO
122

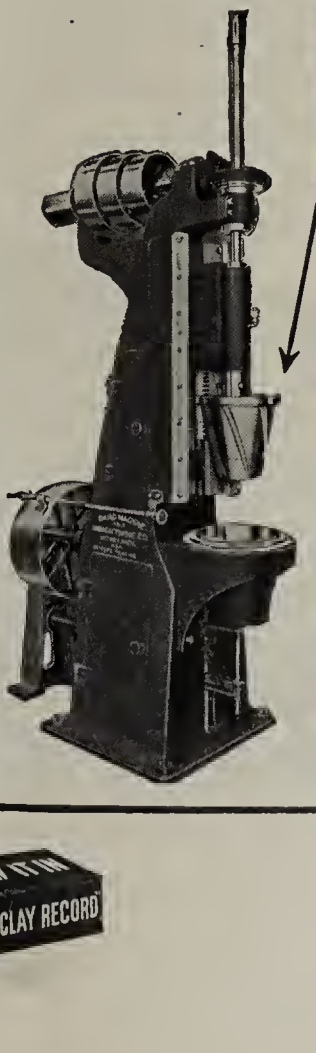
Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the

Baird

Flower Pot Machine



Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird
Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

THEY CHOSE
PRICE PYROMETERS
In Preference to All Other Makes

One of the largest sewer pipe manufacturers in the world was asked recently what their experience had been with Price Electric Co., of Cleveland, makers of Price Pyrometers, and this was their answer:

"About one year ago we equipped our entire plant with Price pyrometers, thirty-six kilns in all. I can say that they are giving us entire satisfaction and that we would not care to dispense with them and to operate our plant without a pyrometer.

"We looked over quite a number of installations of other makes of pyrometers and decided that the Price would suit our conditions much better than any of the others. The installation is quite simple and the instruments are very easily taken care of."

NEED WE
SAY MORE?

The Price
Electric Co.
12367 Euclid Ave.
CLEVELAND - OHIO

The Crosby Dryer

A practical, inexpensive dryer that has proven in actual practice that it saves time, money and worry.

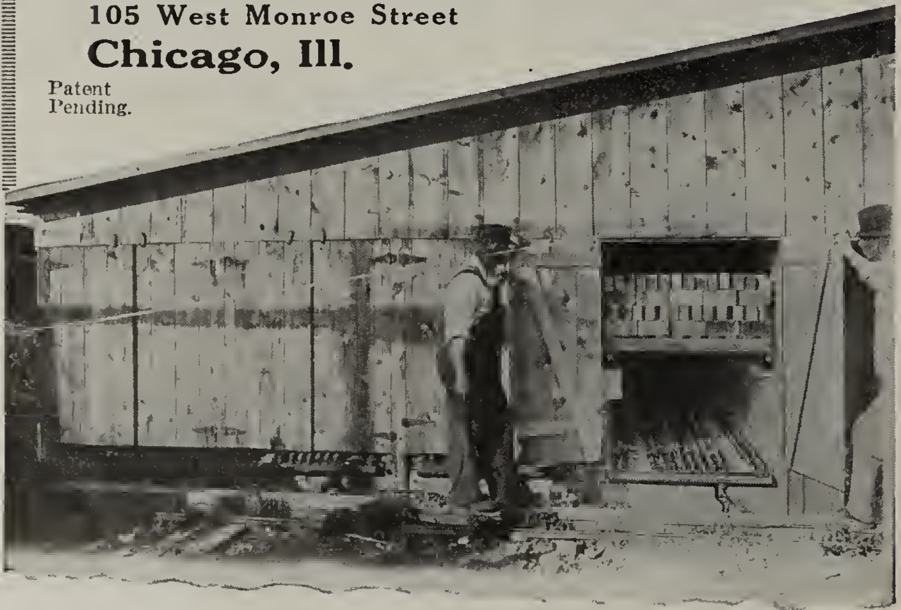
A continuous dryer, heated by radiation and ventilation, with the temperature and humidity under control at all times.

Uniform increase of temperature and decrease of humidity from receiving to discharge end of dryer. Highest economy of fuel and operation, and lowest installation cost. Does not require track, dryer cars, brick work, fans, stacks, firebox or flues.

We invite correspondence.

Crosby Dryer Company
105 West Monroe Street
Chicago, Ill.

Patent
Pending.



them. The same firm has also been awarded the contract for furnishing about 150,000 rough-texture light grey brick for a new apartment house being erected for John L. Warren, of Washington.

Georgia

W. C. Stevens of Macon, Ga., and W. S. Stapler of Milledgeville, have applied for a charter on behalf of the Stevens Brick Company, to be incorporated at Macon with a capital stock of $5,000.

Idaho

Foster and Son, brick manufacturers, have filed articles of incorporation with the secretary of state, fixing their capital stock at $50,000. The incorporators are Frank Foster, Frank F. Foster and Margaret Foster. This company's plant was established a short time ago on the Foster ranch near Boise, Idaho. Frank Foster discovered valuable clay deposits and accordingly promoted this enterprise. He is a brickmaker of considerable experience.

Illinois

The Tuthill Brick Company, of which J. B. Tuthill is president, is preparing to operate a large common-brick near Blue Island, Ill. The plant, which is to have a daily capacity of 200,000 brick, will soon be completed.

In order to forestall any delays in the work, the Alton (Ill.) Brick Company has arranged to ship about twelve carloads of paving-brick to the site of an extensive paving project being undertaken by Upper Alton.

It is rumored that a company is soon to be formed to utilize a newly discovered deposit of clay near Freeport, Ill., found on the property of J. Stickney. Present indications point to the establishment of a pottery plant, provided, of course, that this deposit does not turn out to be a "bloomer."

Indiana

The Rockport (Ind.) Drain Tile Company reports that it was the low bidder on twenty-three carloads of drain-tile to be used in the Canal Zone, ranging in sizes from four to ten inches. There were only three bids offered for this business, the above company's price being the low one by a very small margin, it totaling something more than $8,000. The tile are to be delivered at Colon via port of New Orleans.

M. L. Akers of Jeffersonville, Ind., has sold the property and site of the Jeffersonville Brick Company to the Pennsylvania railroad, as was earlier predicted. He is still negotiating with railroads which would carry the cross-river traffic as to whether he would be able to get into the Louisville market on a basis on which he could compete. He is planning an extensive plant some distance from the old one, in case he can come to a satisfactory understanding as to the rates across the river.

Iowa

After a month's shutdown, due to labor troubles, the Lehigh (Ia.) Clay Products Company is again operating.

The plant of the Grinnell (Ia.) Brick and Tile Company was sold at public auction on September 29, following the decision of the stockholders to discontinue business.

The What Cheer (Ia.) Clay Products Company appeared before the state railroad commission recently, asking that the Burlington be requested to put in a side track at Stark, Ia., for the accommodation of shippers.

This, it is said, would greatly facilitate shipping from towns in the vicinity of What Cheer to points along the Burlington.

Kentucky

Eight buildings which burned recently in Carlisle, Ky., with a loss of from $10,000 to $12,000, will have to be rebuilt of something besides frame, according to the terms of an ordinance recently passed in that city.

Just before the men returned to work in the brick plant of E. H. Long at Sturgis, Ky., one day recently, the boiler exploded, one of the men suffering a fractured skull and other injuries from which, it is feared, he will not recover. Mr. Long and his little son were standing nearby but fortunately escaped harm. The damage to the plant is being repaired.

Brick will be used in paving East Second street in Maysville, Ky., instead of asphalt, as was first intended, on recommendation of the Internal Improvement Committee and the city engineer. Traffic on this street is heavy and a good wearing surface is desired. The matter of brick pavements for Fourth and West Third streets has been referred to the property owners who will have to pay for the work.

John D. Reeves, secretary-treasurer of the Owensboro (Ky.) Sewer Pipe Company, reports an unusual increase in business. The company is now operating ten kilns and has a force of fifty men at work to keep abreast with the demand, which is principally from outside the city. For a time the company was delayed in making shipments by failure to get sufficient cars for shipping purposes.

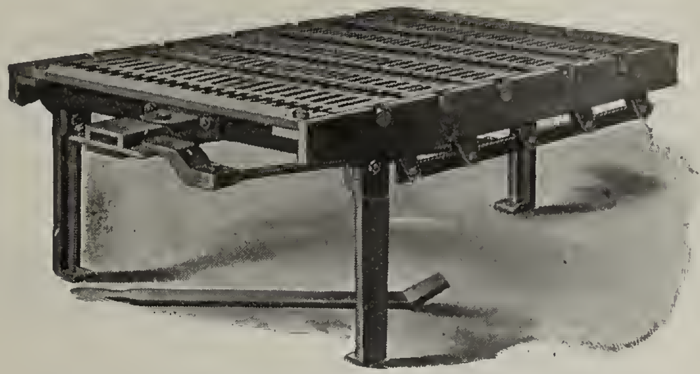
On the recommendation of L. W. Washington, Commissioner of Public Works at Paducah, Ky., the city commission has voted to keep the brick which are being removed from Broadway between Fourth and First streets. These will be sorted and used for repairing other streets, paving alleys, and so forth. The city had an offer from G. W. Kutterjohn, a contractor, of $600 or $2 a thousand for the brick, but the commissioner believes that the city should keep them.

Hollow-tile has played a prominent part in the construction of the recently completed grain elevator and warehouse of the Rapier Grain and Seed Company, East First street, Owensboro, Ky. The new structures replace the plant destroyed by fire last April, the fire being one of the reasons why hollow-tile was selected. Not a piece of wood has been used in the buildings, which are of tile and cement. The elevator has 50,000 bushels capacity and the warehouse holds 300,000 tons of hay. Clark Brothers of Rome, Ky., had the tile contract.

Because they insisted that they should lay the macalite being used on interior partitions in the six-story building being erected by the German-American Realty Company, Pearl and Spring streets, New Albany, Ind., as well as the hollow-tile, the fifteen bricklayers employed on the job walked out, returning to their homes across the river in Louisville. The plasterers had undertaken to put the macalite in place. The next day the contractor, the Alfred Struck Company of Louisville, conceded the point to the union bricklayers and they returned to work.

Members of the Builders' Exchange in Louisville called a "strike" for Labor Day, laid down their tools and all went out to Hike's Point, a popular resort near the city, for a day's outing. The only thing a member was required

Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

WHO PAYS?

for the waste of time and fuel at your kilns **--YOU.**

But **YOU** can stop this waste by installing **HOOK'S LATEST IMPROVED PATENTED UP** and **DOWN DRAFT** uniform clay burning **SYSTEM.**

GUARANTEED

Can be built into old or new kilns at a moderate cost.

MR. C. HOOK is associated with this company and **WE** own and control all of his latest improvements in kilns, including his

GRATELESS FURNACE DRY KILN.

It's worth investigating. Let us "Tell You" more about it.

OHIO KILN COMPANY
Main Office VIGO, OHIO

to show at the gate was his "Union Card," the "Strike Benefit Committee" having attended amply and well to all else that was needed. There were many otherwise staid builders discovered on the occasion of the picnic running sack races, playing baseball and indulging in other manly sports.

The East End Brick Company of Louisville, which has completed a ten-year run at Fort Hill in the east end of the city, has wound up its business as it was previously reported would be done. The machinery has been offered for sale. In the ten years of operation the company has consumed a large clay deposit which, during the Civil War, was fortified and maintained as one of the defenses of the city. At the time the company began its reduction of the hill, the lines of the old embankments and cannon pits were clearly distinguishable.

Business with the Southern Brick and Tile Company, Louisville, Ky., is good, according to Secretary T. Bishop. Most of the shipments are to points out in the state and across the river, as in the case of other Louisville manufacturers. Mr. Bishop for a time considered an exhibit at the Kentucky State Fair this year, but decided to give it up because he was not able to be on hand in person. He has found that, unless he can be present to discuss the benefits of drain tiling with the farmers who inspect the exhibit, it is virtually useless to have one. The company was represented in the state's display, however.

Practically no exhibiting was done directly at the state fair in Louisville recently by local manufacturers. Several of them had considered working up something of the kind but for various reasons did not carry out their original plans. A large number, however, was represented in an exhibit which was arranged and managed by C. J. Norwood, dean of the College of Mines and Metallurgy of the State University. He brought samples of the products of various Louisville manufacturers from his office in Lexington and visitors at the fair were able to get a good deal of information about brick and drain-tile thru his display.

The P. Bannon Sewer Pipe Company, Louisville, Ky., has again contracted to supply the city with its sewer-pipe requirements. The city is now doing a great deal of sewer construction and a standing contract of this character is desirable. Incidentally, the city buyer, in a statement made public, noted that this was the only contract for the year which was not at a sharp increase over last year's price. The company is shipping large consignments at this time to a number of jobs out of the city. Lexington (Ky.) and Nashville (Tenn.) particularly, are taking large quantities of the company's product. These last mentioned are hollow-tile jobs.

There are several matters of general importance that have a direct bearing on the brick and clay products manufacturers of Louisville. The car shortage is perhaps their most serious problem at this time, for it hits the trade in two ways. Kentucky coal mine operators complain that they are getting cars for only two-days' run a week. This will make some of the brick manufacturers scramble before the winter is over for fuel for their kilns, while coal, not contracted for some weeks ago, will command a largely increased price. On the other hand, shipments of clay wares are being delayed more or less by the same shortage. Inasmuch as the brick men, however, use box cars and the coal trade gondolas, there is no direct conflict.

Louisville brick manufacturers have not suffered by rea-

EQUIPPED WITH
WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

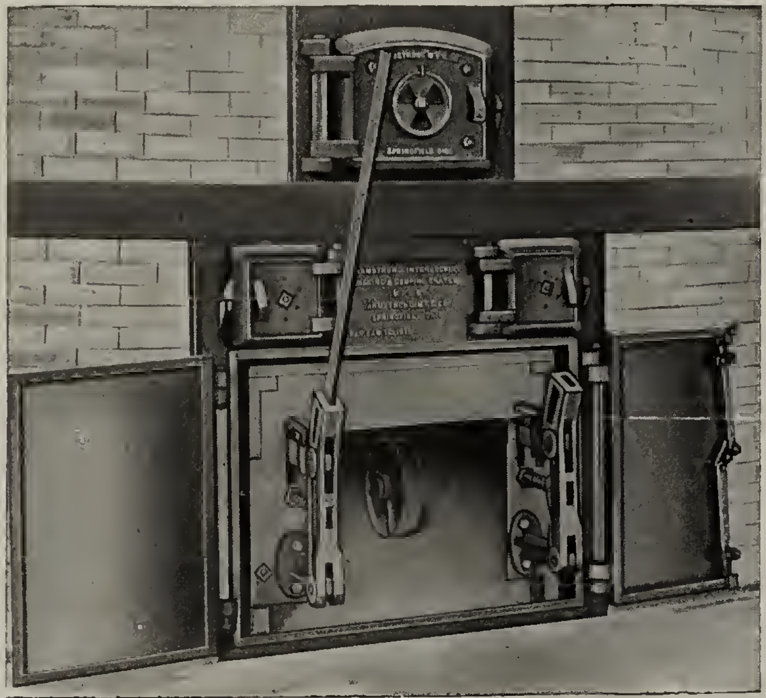
BRISTOL'S
ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. Waterbury, Conn.

Branch Offices: Boston New York Pittsburgh Chicago San Francisco



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

son of the controversy between the Kentucky Insurance Rating Board and the Kentucky Actuarial Bureau, which rates risks for insurance companies. The state board declined to agree to advances on some classes of risks which the companies proposed, and the bureau thereupon ceased its work of re-rating risks all over the state. New risks, however, are being rated. Meanwhile the controversy is continually calling attention to the superior fire-resisting qualities of brick, which is always a good thing. After some six weeks of suspended activities a conference between the board and fire companies' representatives is being arranged and it appears that the dispute will be settled.

The Coral Ridge Clay Products Company, Louisville, Ky., used a good sized space in a special Kentucky State Fair edition of one of the Louisville papers recently to advertise its rough-texture face-brick, common and hollow brick and tile. The plant of the company is operating on a full-time basis, according to James M. Howington, manager, who reports that shipments out into the state and into Indiana territory are satisfactory. The Louisville market, however, is quiet. Slow deliveries of coal have been causing some apprehension, while there has been difficulty in getting cars for shipments as rapidly as the company would like. Mr. Howington stated that the rough-texture face-brick which the company is putting out are selling readily and there are a number of architects in the city who are specifying them on a number of jobs.

Louisville's brick dealers, contractors and manufacturers have been following with much interest the action of the Louisville Master Plumbers' Association designed to expedite the work of members of that organization on contracts. The plumbers' organization has taken a stand which calls for them to be supplied with necessary blue prints free, and specifications on jobs amounting to over $500. Of special importance are provisions to the effect that the plumbing contractor may draw up to eighty-five per cent. of the amount of the contract as the work progresses and have a settlement in full within thirty-five days after completing the job; that after fixtures are placed the owner is to inspect and accept them, after which the plumbing contractor will be relieved of liability in case they are damaged. Arbitration is also provided for. It is believed that this position taken by the plumbing contractors will make their work less difficult and their attitude is suggestive to other sub-contractors.

Maryland

The Westport (Md.) Paving Brick Company has removed its offices from Room 1202, Garrett building, Baltimore, to Westport.

Michigan

The Fairview Brick Company, Detroit, Mich., has increased its capital stock from $50,000 to $75,000, and has changed its corporate name to that of Flood and Hall, Inc. The company makes sand-lime brick in the district of Fairview, located on Detroit's East Side.

The superintendent of schools in Detroit has recommended that $600,000 be spent for new buildings in the section known as Greenfield. This would consist of six schools costing $100,000 each, and they will be constructed of brick if the appropriation is granted.

Contractors of Grand Rapids, Mich., are said to be experiencing great difficulty in securing brick for their

Avoid Annoying, Costly Leaks

in the boiler room, or on any flanged pipe line or connection in the plant carrying steam, hot or cold water, etc., by the use of

JENARCO

Sheet Packing

A gasket of Jenarco placed between any flanged joint will make that joint absolutely and permanently tight. No escaping of steam, no damaging or costly leaks, no annoying dripping of water. Obtain through your regular dealer, either in gaskets cut to exact size and shape required, or in sheets 36 in. wide, any length required, all standard thicknesses.

Jenkins Bros.

80 White Street. New York. 524 Atlantic Avenue. Boston.
133 N. 7th Street. Philadelphia. 300 W Lake Street. Chicago.
Jenkins Bros. Limited. Montreal. Canada. and London. E.C. England.

If the Grade is Sufficient—Gravity Supplies All of the Power

B. & B. Friction Grip Aerial Tramway

requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

BRODERICK & BASCOM ROPE CO.

New York ST. LOUIS, MO. Seattle

Tycos
FERY RADIATION
PYROMETERS
Eliminate Guesswork from the Manufacture of All Products requiring extremely high Temperatures ★ ★ ★ ★

We Manufacture - Thermometers and Instruments covering every Temperature requirement in Metallurgy and Chemistry

A Catalog Cheerfully Sent Upon Application

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Taylor Instrument Companies
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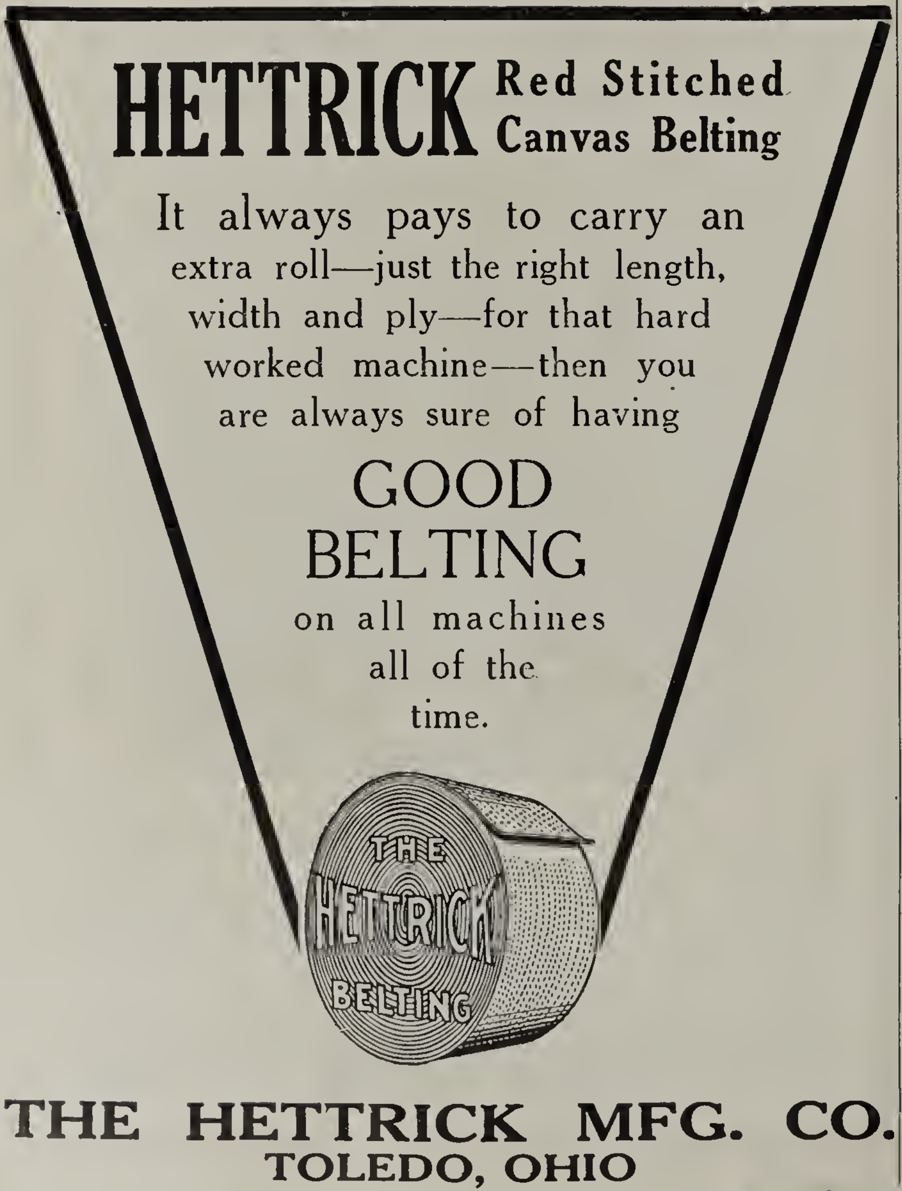

HETTRICK Red Stitched Canvas Belting

It always pays to carry an extra roll—just the right length, width and ply—for that hard worked machine—then you are always sure of having

GOOD BELTING

on all machines all of the time.

THE HETTRICK MFG. CO.
TOLEDO, OHIO

projects, due to the fact that the local plants are unable to keep production abreast of demand. To this is added a shortage of cars which increases the difficulty of getting brick.

The rest room which was built under the auspices of the Detroit Brick Manufacturers' and Dealers' Association at the Michigan State Fair, which ended September 14, was a huge success, and was crowded at all times. A young lady was in charge who looked after the comfort of the visitors. The outer walls of the exhibit were of brick, while the interior was fitted up with comfortable wicker chairs, ferns and flowers, the lights being in red globes to make it distinctive. Blotters with photographs of the rest room, fans, match boxes and other souvenirs were distributed.

The Grand Rapids (Mich.) Brick Company, after reorganizing as the Clay Brick Company and increasing its capital stock to $100,000, has sold out its entire interest to a new concern of the same name, controlled by Chicago parties and having a capital stock of $100,000. The deal was consummated during September. O. M. Carter, vice-president and general manager of the new incorporation, has taken over the management of the business. John J. Moroney is president of the new company, Mr. Carter, vice-president and general manager, and C. L. Ross, secretary and treasurer. William J. Clark, who managed the business under the old arrangement, will remain with the company for the present. The new management has planned a number of improvements to be made on the plant which, when completed, will make the undertaking one of the most modern of its kind in the state.

It is certain that the city of Detroit is slated for a big activity in building that will continue for several years at least. At the present time, all records are being broken, even at the high prices for labor, brick and all structural materials. Should the prices of these commodities be reduced because of a falling off in the demand or unsettled conditions, there are enough local firms who are just waiting for such opportunity to keep Detroit builders supplied with work for a long while. "Brick and Clay Record's" correspondent knows of at least a dozen firms who had planned to erect large structures this year but who have abandoned their plans owing to the high price of building; they have stated, however, that they would proceed with the letting of the contract just as soon as prices for materials becomes normal again. Take for instance, James Couzens, former general manager of the Ford Motor Company. He is planning a twenty-four story office building at Shelby and Fort streets, but he says to build this year would cost him a quarter of a million dollars more for steel alone over a normal building year. So rather than build now and pay this increased price, he is waiting for steel to come down in price. The same applies to many firms who had planned brick additions, houses, and so forth. The high price of brick has unquestionably held back some building, but there is so much construction work despite high prices, that the brick manufacturers themselves have not been able to produce enough ware.

Minnesota

Operations have been discontinued at the North American Brick Company's plant located at Tower, Minn., and will not be resumed until spring. P. Crosby, president of the company, who has been supervising the installation of machinery at the plant, has returned to his home in Chicago, Ill., while S. E. Sullivan, engineer of the plant, has migrated to Minneapolis where he intends to hibernate until weather conditions permit the resumption of work in the spring.

Montana

The plant of the W. E. Dowlin Brick Company, Billings, Mont., has been remodeled and enlarged at a cost of $15,000, and is now manufacturing 25,000 brick daily. The company has made more than one million brick during the year and has a half-million in the kiln ready for firing. With the increased capacity, the plant is now able to take care of all the local demands and ship some of its brick to nearby towns.

Nebraska

The Beatrice (Neb.) Brick Works, recently destroyed by fire, will immediately be rebuilt. The new plant is to have a daily capacity of 30,000 brick and will employ thirty men.

New Jersey

Plenty of work is reported from the plants of the National Fire Proofing Company in the Perth Amboy (N. J.) district, but the many orders are for small jobs. Considerable activity is reported in most of the terra cotta plants. Brick manufacturers are as busy as usual for this time of the year.

A movement is under way to stimulate activity among the clay products manufacturers of Perth Amboy and vicinity who are members of the Middlesex County Clayworkers' Association. Some of the claymen point out that the Monmouth Manufacturers' Association is growing, while the older body in the heart of the Jersey clay belt is retrogading.

New York

United States Magnesite Corporation is the name of a new concern incorporated at New York City with a capital stock of $100,000 for the purpose of mining magnesite and clay, together with the pursuit of other interests. H. J. Doggett, H. O. Schundler, and F. E. Schundler of 11 Pine street, are the incorporators of the new enterprise.

North Carolina

Among the heavy sufferers from the recent North Carolina flood were the numerous brick manufacturers operating plants situated along the bottoms of the Catawba river and its tributaries. However, they are all determined to rebuild their plants and supply the tremendous demand for brick now existing thruout the state.

North Dakota

In the recent employment of William Soini of Tayler, N. D., by the North Dakota Brick Company of Dickinson, for the purpose of making ornamental pottery and ceramic products, may be seen the possibility of a pottery plant being built at that point.

Ohio

H. F. White, manager of the brick department of the Hocking Valley Products Company, Columbus, Ohio, which operates a plant at Glendale, reports a good demand for brick, the only drawbacks being a labor shortage and the lack of sufficient cars.

The Delaware (Ohio) Clay Products Company, a large face-brick manufacturing concern, has started to build an addition to its plant and to install new machinery, all of

Why Waste Your Money ?

How do you *know* your watchman or burner is steadily making his rounds? You *believe* he is, but do you actually know the money you pay him is providing the safety you intended it shall? How valuable would be a nightly record of his work. When $40 will give such records as these, will more than double the efficiency of your watchmen, can you still be content to *guess?*

Let us tell you how this watch-the-watchman system works; never failing and unquestionable. To know this costs you nothing.

HARDINGE BROS., Inc.
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Manufacturers Portable Watchmen's Clocks. Energetic Representatives Wanted for Unoccupied Territory.

Gold Medal Award

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THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Their Merits are Vouched for by
Hundreds of Satisfied Users

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THWING INSTRUMENT CO.
437 N. 5th Street - Philadelphia, Pa.

"A Pyrometer with a Conscience"

IT IS THE

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A Big Impressive Instrument

—made so sturdily that it resists rough handling.
—made so perfectly that it records perfectly year in, year out.
—equipped with a compensating device that compels your serious attention.
—equipped with the largest recording dial in existence (in itself a guarantee against errors, for a small dial CANNOT record accurately).

We say it has a conscience—we mean it. We go further—we say it is the best in the world—we can prove it.

Beighlee Electric Company, Cleveland, O.
Herman A. Holz, Hudson Terminal Bldg., New York City
Representative in New England States

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you can do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the dependable brand.

Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. New York

Chicago, Ill. St. Louis, Mo. Philadelphia, Pa.
East Liverpool, O. Kansas City, Mo. Boston, Mass.
Cleveland, O. New Orleans, La.

We carry a complete line of high grade chemicals for the clay industry

which it is estimated will cost $50,000. In all about 2,500 tons of steel are being used in the new work.

The regular monthly meeting of the Ohio Paving Brick Manufacturers' Association was held at headquarters in the Hartman building, Columbus, on September 27th, with a large attendance. Mostly routine matters were taken up and disposed of.

Orders are fairly plentiful, but average rather small in comparison with the big jobs of the past year, according to W. W. Coney of the Moores-Coney Company. Business on the whole has been quieter than expected, altho the month of September showed a better feeling among builders than August.

The Ironclay Brick Company, which has general offices in the Ruggery building, Columbus, and a large face-brick plant at Shawnee, Ohio, is having a fair run of orders for the fall season. One of the worst features of business at this plant is a shortage of cars which is interfering with shipments.

Manager Cooper of the Columbus (Ohio) Brick and Terra Cotta Company is still busy selling the supply of face-brick on hand, altho the company's plant has been idle for some time. Negotiations for the sale of the property are being carried on, but it is still too early to make any announcement as to the future plans of this concern.

According to H. S. Hamilton, president of the McArthur (Ohio) Brick Company, the month of August was by far the best in the history of the company. During that period a total of 2,200,000 brick were shipped from the plant. Orders are coming in nicely and prospects for the future are considered as being bright.

Another indication of the progress of the fireproof material business is seen in the activity at the Euclid Builders' Supply Company, Cleveland, Ohio. The demand for all building materials is way ahead of last year. The difficulty with contractors last fall was in financing their project. Today it is a question of where can they get the labor to carry out their contracts.

M. M. Morrow, salesmanager of the Hocking Valley Brick Company, which operates a plant at Logan, Ohio, for the manufacture of paving-brick, reports a good demand for pavers with orders booked ahead for more than sixty days. The plant is being operated at full capacity. Some trouble is experienced from both a car and labor shortage. Prospects for the future are very excellent.

The 13,000-volt line which the Brunt Tile and Porcelain Company of Columbus, Ohio, is having run to its plant by the Columbus Railway, Power and Light Company, is now within a mile of the plant and Mr. Brunt hopes to see the completion of this work early this month. New motors and other electrical equipment will be installed when the line is completed. The company now produces its own electricity.

The John Kline Brick Company of Wickliffe, Ohio, has recently secured permission from the patent holders to manufacture a wire-cut-lug paving-brick. This company operates a well constructed and managed plant which has a daily capacity of 40,000. The company is a progressive one, making a high quality of brick which has stood the test of service. John C. Kline is president and is of high repute in the business world.

The Anders Shale Brick Company, Cincinnati, has been operating only one kiln lately, while engaged on other work, but expects shortly to be running again at full capacity. A good-sized reserve stock of brick has been accumulated, but orders have frequently run ahead of the company's ability to take care of them of late. Prospects are that the capacity of the plant will be in demand until cold weather sets in.

Leroy Gaddis of the Gaddis-Harrison Company, Columbus (Ohio) brick dealers, says: "Business in face-brick and terra cotta is keeping up while building operations for the fall season are quite active. The outlook for the future is very bright. We have just closed a contract to furnish 100,000 pavers for the Kingston (Ohio) school building which is being constructed by R. O. Van Gundy of Lancaster, a general contractor."

Extension of the fire limits in Cleveland, Ohio, now seems an assured fact. The ordinance prepared by Councilman Rolf, authorizing the extension of the fire limits, together with Councilman Dittrick's amendment affecting principal thorofares on the West Side of the city, has been passed by the council and has received the Mayor's signature. By this action the outer limits of the fire district are carried to the city line on several of the principal streets.

William Nickel of the Cincinnati (Ohio) Sewer Pipe Company, states that business with his company has been unusually brisk of late, the demand being in excess of the ability of the plant to supply it. Small jobs make up the greater part of the business now being handled and they are, for the most part, in the immediate vicinity of Cincinnati. Outside business is available in some volume, but the jobs close by are preferred, as a rule, being easier to handle.

The Shorey-Willis Brick and Supply Company is now settled in its new quarters in the Union Savings Bank and Trust Company's building, Cincinnati, where it moved some time back from the Second National Bank building. W. H. Willis was out of the city recently, visiting some of the plants whose products the company handles. Business has been very good since the dullness of the latter part of the summer gave way to the activity recently noted. The company looks for a good fall season.

Brickmaking in Cleveland, Ohio, has been greatly stimulated during the past few months, mostly by the removal to the "Sixth City" of several automobile and other manufacturing plants from Detroit. One of the largest orders placed for brick is that with the Farr Brick Company for 5,000,000 commons. These will be used in the construction of new plants for the White Company, the Dan Products Company, the Graselli Chemical Company, and the Cadillac Motor Company.

Considerable progress has been made recently in the reorganization of the Shawnee Flash Brick Company by the four bondholders who purchased the plant at a receiver's sale some time ago. The plant is located at Shawnee, Ohio. New York capitalists are now interested in the project and a definite announcement is expected in the near future. The men who purchased the plant and assets of the company are L. W. Tussing, D. L. Mauger, J. J. Enlows, and John Koontz.

The Wege Marble and Tile Company, Central National Bank building, Columbus, Ohio, will furnish the marble and tile to be used in the Seneca hotel, now in course of construction on East Broad street. This order will include the main lobby, dining-room, corridors of the first floor, as well as corridors, baseboards, flooring, wainscoting, and so forth, thruout the hotel. There will be

The Earnings of Your Yard

can be increased without increasing your production. Your profit-margin needs to be expanded. This can be accomplished by securing an improved quality of material from your drier.

The Standard Drier

is producing remarkable results of this character at other brick plants and the cost of operation is exceptionally low. Upkeep expense is next to nothing, users write us.

Let us send you our catalog, with actual facts and figures. Let us tell you what we will specifically guarantee in your own case. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

A Good Test for Cling-Surface Treatment

Fans are often run at high speeds and located where heat, settling dust and short centers combine to make trouble for the belts, but **not** where the Cling-Surface is used.

The above 10-ft. fan is driven by 30 h. p. motor with 12-in., 1050 r.p.m. pulley. Driven pulley, 48 in . Centers, 9 ft. apart. Belt is 8-in., 2-ply leather and runs with 15-in. sag. It is treated with Cling-Surface, is pliable, waterproof, and never runs off or gives trouble of any kind. Will long outlive any untreated belts.

The new semi-liquid form of Cling-Surface makes application very easy, and the expense of treatment is insignificant. Do yourself and us the justice of a trial or at least send for literature.

Cling-Surface the life preserver for belts

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Three Clay Car Requisites

Strength
Durability
Ease of Operation

And all three of these are to be found in

Lakewood Clay Cars

in much greater degree than in any other cars built. They are built of steel, are well braced, equipped with heavy chilled wheels, and self-adjusting bearings. The rounded frame prevents cars from locking when making short curves.

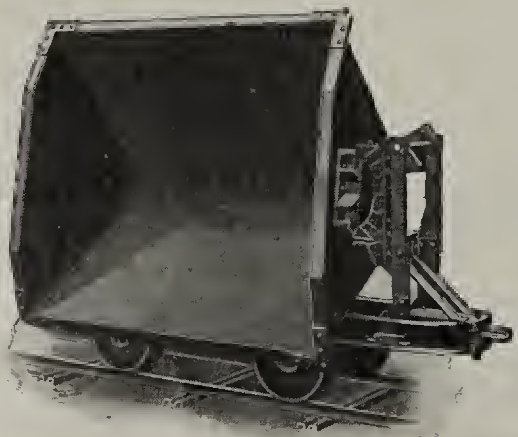
The Dumping Mechanism is located at one end of car only, the malleable lugs or locks working independent of each other. This prevents the body from dumping to the wrong side—also allows body to be tilted and locked at any position desired.

You can't get away from it—Lakewood Cars are Leaders in the clay products field.

Also—drier cars, trackage, turntables, clam shell buckets, steel pallets, etc.

Let our Engineering Department solve your haulage problems.

The Lakewood Engineering Co.
Cleveland, Ohio



ninety-one tile bath-rooms. The elevator lobby will also be done in marble and tile. It is planned to complete the hotel about March 1, 1917.

Charles Frank, salesmanager for the Nelsonville Brick Company, with offices in the Wyandotte building, Columbus, Ohio, said recently: "The biggest problem now is to get the ware loaded and shipped, toward the accomplishment of which we are bending every effort. We make paving-brick only and contractors are calling for deliveries. A shortage of labor is interfering with our work to a large extent. One of our plants is being operated but the other has had to be shut down because of a lack of labor. It is our busiest season."

The plant and property of the Vinton (Ohio) Clay Products Company, which was sold at auction about a year ago to Topper Brothers of Columbus, has again been sold by the Topper company to C. B. Neal of Montreal, Canada, who visited Columbus recently and announced his plans for the future operation of the plant. He proposes to put the factory in shape for the manufacture of face-brick. Mr. Neal, who was accompanied by his wife, has had considerable experience in the manufacture of brick near Montreal.

John Suer of B. Suer and Sons, Cincinnati, reports that the company has been experiencing excellent business lately, disposing readily of the entire output of its two plants which have a capacity of 25,000 a day at the Cincinnati factory and 30,000 a day at the plant down the river in Indiana. The brick are of the common variety, and are sold for the most part in Cincinnati. In view of the ease with which the output is sold, the company is contemplating various improvements to increase the capacity in the spring, including additional racks and a steam shovel to handle the clay.

The car shortage is still increasing and practically all manufacturers in Ohio have a complaint to make regarding a lack of sufficient equipment in which to make prompt shipments. This is especially true on the Baltimore and Ohio and the Wheeling and Lake Erie. The Hocking Valley railway is in the best shape, insofar as the car supply is concerned, but there is a shortage on that line also. Shippers are of the opinion that the situation will steadily grow worse until the winter season sets in. There is also quite a labor shortage at all of the plants, especially those in the Hocking valley, where an unprecedented demand for coal miners is attracting men away from the brick plants.

The Cincinnati (Ohio) Clay Products and Supply Company is making deliveries of brick on the Eastern High School job, which is in many respects one of the most interesting handled in that city for several years. The completeness of the contractor's plant, and the pains to which he went in preparing for the work, are especially noteworthy. In the delivery of the brick, for example, the cars in which the material is shipped are placed on the siding built by the contractor to the site of the school, the brick being carried by a roller gravity conveyor to the point where they are stacked, several hundred feet distant. A tower, similar to a concrete tower, will be used in elevating the brick to the level of the wall as the job progresses.

Oregon

B. L. Tracy of Arago, Ore., operating what is claimed to be the only brick and tile plant using clay from the Coquille Valley, is enjoying a prosperous business. His plant has a monthly capacity of about 16,000 tile and also produces about 150,000 to 200,000 brick during the season. Mr. Tracy's efforts in advertising drain-tile are worthy of praise, one of his latest and most interesting moves being the donation of one thousand feet of drain-tile to be used as a prize in a local corn show to be held this fall.

Pennsylvania

The Clifton-Aldin Brick Company has been incorporated at Philadelphia, Pa., with a capital stock of $100,000 to manufacture clay products. F. R. Hansell, Philadelphia; George H. Martin, and S. C. Seymour, both of Camden, N. J., are the incorporators of the new concern.

A large brickmaking plant will be erected in Philadelphia, Pa., at a total cost of about $50,000 on a twenty-three acre tract of land recently purchased by J. J. Allen from the Pennsylvania railroad. The parcel lies at the intersection of the Philadelphia and Bustleton division of the Pennsylvania railroad and the Frankfort division of the Reading railway. The new plant will adjoin the plants of the Tansey Brick Company, William Kelly and C. O. Struse and Sons.

One day in September, all of the older school children of Reading, Pa., were taken on a tour of inspection thru the plant of the Glen-Gery Brick Company, where 90,000 brick are made every day, and were shown the process of manufacturing from the time the clay leaves the bank to the point where the finished product is taken from the large kilns. It was a joyful occasion for the children, the boys particularly watching with great interest the large electric shovel as it removed the clay from the bank.

Tennessee

The Holston Corporation is building fifty homes at Erwin, Tenn., for the employes of the pottery that is being built there.

The Kingsport (Tenn.) Brick Corporation is building twelve additional employes' houses. Forced by the great demand for its product, this company has been compelled to enlarge its capacity several times. Operations are going on day and night in an attempt to fill the orders on hand.

Washington

It is announced the Joseph Oppenheimer has put $6,000 into a brick and tile plant at Chewelah, Wash.

The city of Centralia, Wash., is considering the advisability of constructing, at a cost of $125,000, a trunk sewer to replace the China Ditch, which is unsatisfactory under present conditions.

The American Fire Brick Company of Spokane, Wash., is delivering twenty carloads of hollow-tile to the Carsten Packing Company for the erection of the walls and partitions of a new storage and packing addition to the company's plant in East Spokane. Several shipments were also made by the company to Coast points this month.

Another Washington product has been ranked with the best in the world thru a contract closed recently by the Washington Brick, Lime and Sewer Pipe Company of Spokane, with the Alaska Engineering Commission for the delivery of 30,000 fire-brick. The brick will be used by the government in a department of the Alaska railway, now under construction. The government experts specified the Spokane product as being admirably suited to the purpose for which it was intended.

GANDY and Heat

"We have subjected your Gandy Cotton Belting to severe tests on our starching machine, where it is run in intense heat, and find it is far preferable to leather belting, one Gandy Belt giving us the service of two or three leather belts under the same conditions. Would recommend this belting to anyone desirous of a belt capable of withstanding intense heat."

The baking and hardening influences of intense heat are natural enemies of the pliableness so necessary to good belt service.

Ordinary belting, by reason of its very nature, hardens and stiffens when subjected to high temperatures, but Gandy Belting, owing to the materials used and the process of manufacture, resists these influences to a high degree.

While "intense heat" conditions do not prevail in all shops, this and other advantages, such as immunity to the effects of water, gas, oil, dust and steam simply emphasize the certainty that Gandy will more than mak good under ordinary conditions.

There may be a place in your plant where the use o Gandy will mean better service and money saved. Write us—our Service Department will tell you frankly if you can use Gandy to advantage.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Every Clay is a Different Problem

is an old saying among clayworkers. **Some** clayworkers argue that you cannot burn all kinds of clay equally well in the same kind of kiln—that the Hook Down Draft System may be good for brick and drain tile, but don't believe that it would get equally good results with their ware.

After all, what should a kiln be but a device to distribute heat uniformly?

We adapt the Hook Down Draft System so that it burns Fire-Brick with the same uniformity and with the same comparative saving in time and fuel (the same heat economy) as it burns drain tile.

THE HOOK DOWN DRAFT SYSTEM accomplishes all of its wonderful results in saving Time and Fuel, because it distributes Heat **Uniformly** and **Rapidly.**

Hook Down Draft Kilns are selling themselves (reorders) to other men who know what they can do. They are burning all kinds of ware in less time than any other type of kiln.

Upkeep Cost is low—Easily and Cheaply Installed in Old Kilns—Cheaper to Build Than Other New Kilns of Equal Stability. Will you give us an opportunity to prove these statements to **YOU?** If so, why wait?

Let's get at it now.

Bands, Grates and All Kinds of Kiln Accessories

Hook Patent Kiln Co.

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MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

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Heat Insulation of Kilns

By

P. A. BOECK, CHEMICAL ENGINEER

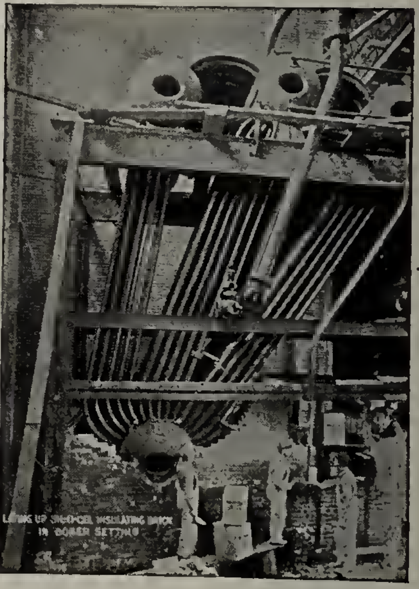
(Continued from September 19 issue)

CONDUCTION.—Conduction is the action taking place in the transfer of heat in which the heat energy is passed along from a particle at a higher temperature to a lower one by virtue of their contact. While this method of heat transfer applies to the three states of matter, it is only of magnitude in solids.

RADIATION.—By radiation heat is transferred from one body to another without any material agency by wave motion; this applies only to the gaseous state of matter.

CONVECTION.—Convection is that process of heat transfer in which some portion of the body whose temperature is raised, moves to another place in the medium where the temperature is lower, thus tending to raise the temperature of the medium. This method of heat transfer is therefore limited to liquids and gases.

This is illustrated by the well known example of a steam boiler.[†] The heat generated by the fuel burning in the fire-box is imparted to the dry surface of the boiler plate by radiation from the hot fuel bed, furnace walls and luminous flames, and secondly from the moving gaseous products of combustion by convection. From the dry surface it travels through the soot, metal and scale to the wet surface purely by conduction and is in turn transmitted into the boiler water mainly by convection.



Laying up Sil-O-Cel Insulating Brick in Boiler Setting

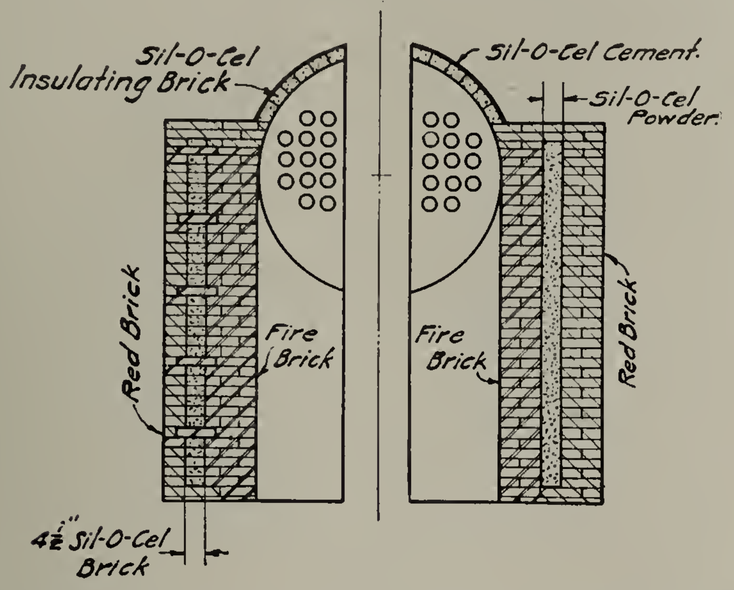
The energy in the form of heat which eventually finds its way into the water in the boiler is, of course, subsequently available in other forms. That portion, however, which is transferred to the walls of the furnace setting by any of the three methods mentioned, is conducted through the setting and lost by radiation or convection from the outer surface of the setting, if means are not provided to prevent. It is the heat lost in this manner and methods for its prevention that will be especially considered in this discussion.

The selection of a boiler setting to illustrate the various methods for heat propagation was taken as that most familiar to general practice, but the selection is, unfortunately for the illustration, one in which the heat losses thru the settings are compartively low.

RATE OF HEAT FLOW

The rate of transfer of heat under various conditions by both conduction and radiation shows the relative importance of these two methods in influencing heat losses.[3] The amount of heat conducted thru a unit area from one part of the body to another is proportional to the difference in temperature of the two parts; directly proportional to the thermal conductivity of the body thru which the heat passes and inversely proportional to the distance between the two parts of the body. In other words, the conduction of heat thru a solid body from one place to another is a direct function of the conductivity of the body and the difference in temperature of the two planes, and an indirect function of their distance apart.[4] This is identical with Ohm's law for transfer of electrical energy.

[†] Kreisinger, Henry and Ray, Walter T.: The Transmission of Heat Into Steam Boilers, bulletin No. 18 U. S. Bureau of Mines (1912).



Insulation of a boiler setting Sil-O-Cel Powder in Hollow Wall (Left Hand of Diagram), and by Sil-O-Cel Insulating Brick (Right Hand)

RADIATION

The heat transferred from one body to another by radiation is proportional to the difference of the fourth powers of the absolute temperatures of the two bodies. While this is strictly true only of the ideal "black-bodies," the variation is so small that for all practical purposes this relation holds good in ordinary procedure.[5]

HOLLOW WALL CONSTRUCTION

This relation indicates why a hollow-wall space is an effective insulator in low-temperature work, such as refrigeration, etc., whereas in high-temperature operations the loss of heat by radiation thru a hollow-wall space is so great that its insulating effect is less than if this wall space were filled with material of rather high thermal conductivity. This has been brought out by Ray and Kreisinger, who demonstrate that the hollow-wall space type of wall construction is much less effective as a means for preventing the loss of heat than a solid wall of any ordinary construction material of equal thickness.

This is especially true if the air space in the hollow wall is near the furnace side and becomes highly heated. This is entirely contradictory to the general belief that, since air is a poor conductor of heat, air spaces built into the walls of a furnace will greatly reduce heat loss by radiation. While the heat does travel very slowly through the air by conduction, it leaps over the air space readily by radiation, because the quantity of heat which passes across the hollow space is a function of the fourth power of the absolute temperatures of the surfaces inclosing it, which loss is enormously increased by rise in temperature.

FURNACE WALLS

In general, in high-temperature furnace construction there are two separate and distinct factors, which must be considered to produce an effective wall.

The first of these is to provide a material having the ability to resist the action of high temperatures, sufficient mechanical strength and, possibly, the property of resist-

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[4] Ray, Walter T., and Kreisinger, Henry: The Flow of Heat Thru Furnace Walls, Bulletin No. 8, U. S. Bureau of Mines (1912).

[5] Gurney, Harold P.: Heat Radiation, Journal of Ind. & Eng. Chemistry, Vol. 111, No. 11, p 807 Nov., 1911.

[3] Convection and Radiation of Heat. Irving Langmuir. Transactions Am. Electro-Chem. Society, Vol. 23, p. 299 (1913) Metall. & Chem. Eng'ing. Vol. 11, p. 278 (May, 1913).

Wonder
if you would

If

you were in need
of an
adequate dryer—
if

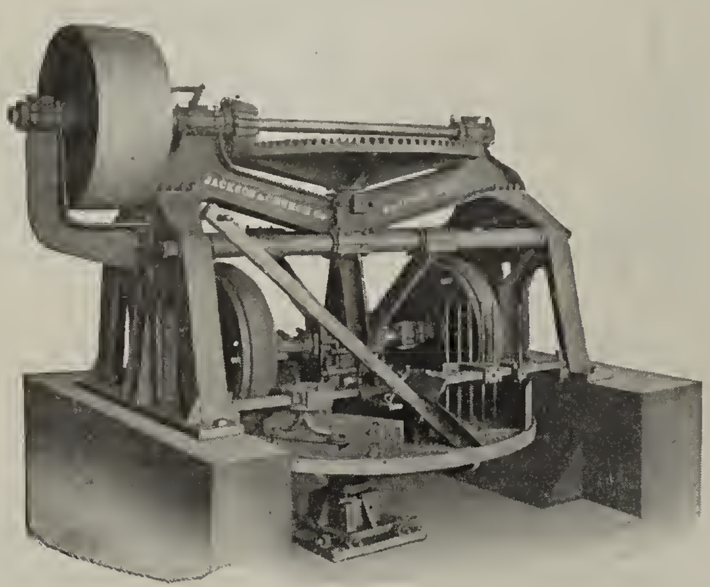
you were tired of
the usual
difficulties attendant
with the usual dryer—
if

you wanted to be
absolutely sure
of being able to
dry safely—
if

you wanted to dry
twice, three times
or
perhaps ten times
as fast as
ever before—
if

you wanted to
use less men, less
cars, less space—

would you use
THE
PROCTOR
DRYER
the one that is built
by the
Philadelphia Textile
Machinery Company
in Philadelphia, Pa.
at Hancock and Somerset Streets



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

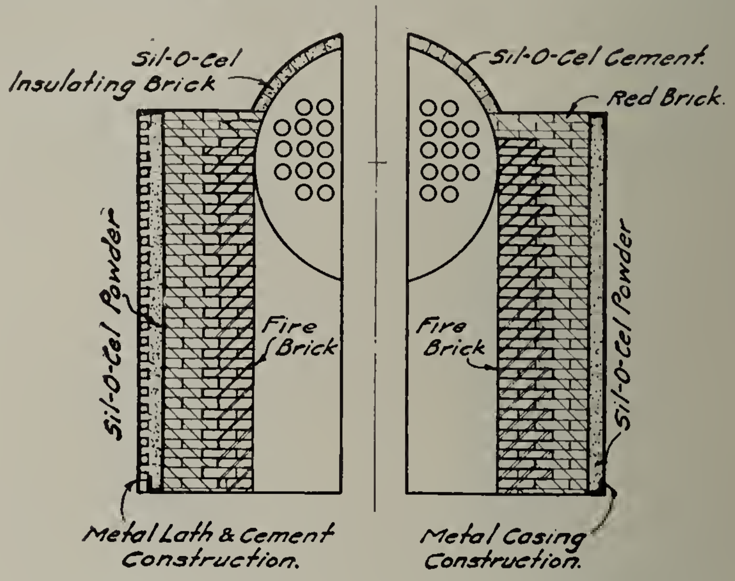
Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

ing corrosive slags, gases, etc., without spalling or being eroded.

Secondly, to prevent the excessive loss of heat due to conduction from the interior of the furnace to the outside where it is lost.

It is rare that a good refractory material is an insulator; usually it is necessary to augment or back up the refractory with some material having a much lower heat-conducting capacity.


Sil-O-Cel Insulating Brick
Sil-O-Cel Cement
Red Brick
Sil-O-Cel Powder
Fire Brick
Fire Brick
Sil-O-Cel Powder
Metal Lath & Cement Construction.
Metal Casing Construction.

Showing the Use of Sil-O-Cel Insulating Powder

REQUIREMENTS OF INSULATORS

The requirements of the insulating backing for the more refractory lining are rather severe. An ideal material would have the following properties: It should have an extremely high insulating value and be sufficiently refractory so that no fusing or excessive shrinkage would take place in that portion which is in direct contact with the highly heated refractory wall. It should not be decomposed or be changed greatly in volume at the temperature, and it should, furthermore, be of light weight, unaffected by moisture, of convenient form, readily applied by unskilled labor, and low in cost. It should be of such composition as not to react upon or attack either the refractory material or the metal shell of the container, even in the presence of moisture; i. e., it should contain no free acid radicals, and should not be broken or caused to settle by vibration or heat. It should not have high expansion, and it should be sufficiently elastic to take up the strains between the lining and the shell produced by temperature changes.

While this is a rather formidable array of requirements, there are products upon the market which fulfill practically all of them.

Such materials as are being commonly applied to steam-temperature insulation, of which magnesia and asbestos are best known, are, of course, eliminated from consideration in the great majority of cases mentioned here on account of decomposition, shrinkage and settling. The lack of more extended practice in high- temperature insulation must be attributed to the fact that effective high-temperature non-conductors have not been generally available.

AMOUNT OF INSULATION

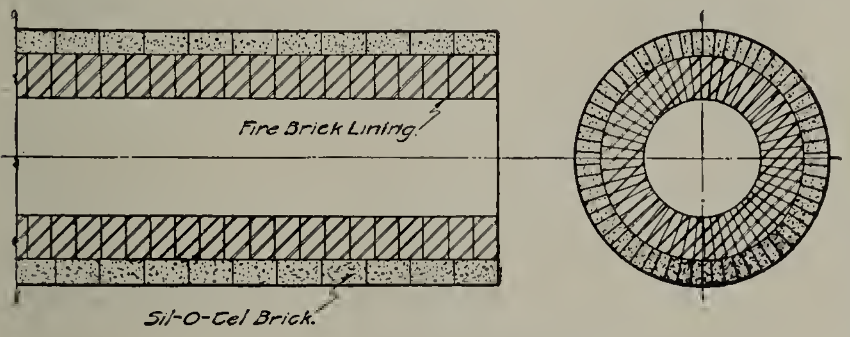
When the kind of refractory material that is best suited to the surface has been determined, the next most im-

Drying Ovens Insulated with Sil-O-Cel Powder portant item is the thickness of the walls, and the nature of the insulating material most suitable. It is also necessary to determine the degree of insulation which will produce the most effective results.

In attempting to obtain perfect insulation, it is entirely possible to over-insulate, causing a serious damage to the refractories in the high-temperature zones of the furnace. To maintain the inner walls, it may be necessary to permit a considerable flow of heat thru the wall, with a corresponding decrease in the temperature of the refractories at the heated point, in order to prevent their destruction.

It would be manifestly impracticable to insulate the roof of an electric steel furnace or open-hearth furnace, for instance, with a heavy layer of insulating material, because the cost of the refractory lining which would be destroyed would be considerably greater than the cost of the heat which would otherwise be lost.[6]

However, the issue in some instances may be met by other practical methods such as increasing the working capacity of the unit in order to make use of the additional heat available, rather than to let this valuable heat at the critical period escape to save the refractory lining. In calcining Celite, the product which we will consider further in this article, the temperatures are controlled entirely by the working load imposed on them without allowing the oil burners to ever fall below their lightest working capacity and highest heat. To produce Celite calcined to 2,500 deg. F., an average kiln has a daily capacity of about 20 tons. When Celite is wanted which has been calcined at 2,000 deg. the kiln is pushed to approximately 30 tons capacity, and for a product treated to even less heat the capacity is increased as high as 40 tons, the heat being the same in all cases.



High Temperature Flue Insulation

In electric-furnace practice, where extremely high temperatures are encountered and where effective insulation is necessary because of the relatively high cost of current, the question of insulation, or rather over-insulation, has been given more attention than in other lines. F. T. Snyder[7] has presented a detailed study of the nature and amount of insulation which is permissible under various conditions and presents many valuable data which might with advantage be applied to other industries.

The requirements of an ideal insulator have been outlined, and in order to show the various methods of application which have been worked out, it will be well to select the insulator which apparently most nearly meets the requirements and use this as an example of methods of construction. In the applications shown, an attempt was made to cover as wide a field of use as possible, to show the scope of possible applications.

The mineral known as Celite, on account of its extremely cellular nature, is a mineral of a highly siliceous composition and of very light weight, which occurs on the Pacific Coast[8] in an exceptionally pure state. It is composed of numerous hollow cells and weighs in its natural rock-form, air dried, from 25 to 30 lb. per cubic foot. When this material is ground properly, it weighs but 8 lb. to the cubic foot, and has a thermal insulating power of about 9 to 12 times the insulating power of ordinary fire-brick. In other words, a 1-inch layer of this material is the equivalent in insulating value of from 9 to 12 inches of fire-brick. Being almost pure silica, its melt-

---

[6] Lyon, D. A. Keeney, R. M. and Cullen, R. F.: The Electric Furnace in Metallurgical Work, Bulletin No. 77, U. S. Bureau of Mines (1914).

[7] F. T. Snyder: The Flow of Heat Through Furnace Walls, Transactions of the American Electro-Chemical Society, Vol. XVIII, p. 235 (1910).

[8] Deposits worked by the Kieselguhr Company of America, New York, Chicago, San Francisco and Los Angeles. See the article by the author in Metallurgical and Chemical Engineering, Vol. XII, p. 109, Feb. 1914.

Why Motor Drive is Best

No. 3

When equipping a new plant you always look for the most improved design of machinery to insure the best plant condition and greatest economy of operation.

Westinghouse Individual Motor Drive

gives a flexibility of layout, to secure cleanliness, best lighting conditions,—ease and convenience of operations of the various machines.

Favorable conditions mean favorable results from the operators as well as the machines.

A card to our nearest office will bring full information.

W WESTINGHOUSE ELECTRIC

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.

Sales Offices in all Large American Cities 435

SAY "I SAW IT IN BRICK AND CLAY RECORD"

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

ing point is high, 2,930 deg. F. (1,610 deg. C.) as reported by the Bureau of Standards, and it can be subjected to high temperatures without fear of alteration.

It has been found advisable, however, not to use Celite as a refractory at extremely high temperatures without some direct protection. This is readily accomplished by using it as a backing material for more refractory and high conducting bodies. Owing to its remarkable non-conducting properties, the accumulation of heat on its face is so great due to the fact that the surface is not cooled by conduction, that a "flash" of flame or gases might easily exceed the melting point of silica and cause failure. If it is protected, however, only modified and uniform temperatures are encountered, which are maintained without damage.

It is possible further to prepare brick and blocks of various sizes and shapes by sawing the natural material by means of gang saws. Standard 9-inch straight Sil-O-Cel brick made from natural Celite weigh from 1½ to 2 lb. each and are equivalent in insulating value to many times their thickness of ordinary fire-brick. In crushing strength these brick withstand over 400 lb. per square inch, and are sufficiently strong to stand transportation and handling.

Sales Convention of Federal Motor Truck

Cedar Point, Ohio, was the scene recently of one of the most successful sales conferences ever held by the Federal Motor Truck Company of Detroit. One hundred and fifty district managers and dealers from every state in the union assembled in Detroit on Wednesday where they took a steamer, chartered for the purpose, to Cedar Point, arriving about six o'clock that evening.

New 1917 models of Federals were on display and were the center of interest, after their arrival on Friday. The enthusiasm with which these models were received is evidenced by the fact that for one of the new models alone, the dealers placed definite orders with Director of Sales, J. F. Bowman, amounting to over one million dollars.

A banquet on Friday evening was the closing feature of the conference. This was held in the grill room at the Breakers. The speakers of the evening were Chief Pitt of the Fire Department of Middletown, Conn., who came from New England to tell the Federal dealers how a Federal had saved his city $1,800 per year. The other speaker was E. St. Elmo Lewis of Detroit, who told the dealers that the best salesmen were the men who could dominate the situation with a prospect. He said, "You have got to know enough about the business of a store or firm to get the authority to tell them how to apply your product, motor trucks, to his or their problem."

M. L. Pulcher, Vice-President and General Manager of the Federal Motor Truck Company, conducted the convention, and in one of his talks to the men said:

"The Federal Motor Truck Company is just concluding the most successful year in its history. Production has jumped way beyond our estimates and sales have kept pace with the production. New buildings have been necessary—until the Federal now occupies acres where five years ago the space was feet.

"Further expansion is necessary and new buildings will be started in the spring to take care of the increased output which will be speeded up to fill the orders which you have placed.

"Over sixty per cent of this year's sales have been from repeat orders, and that is a record of which the Federal Company has a right to feel proud."

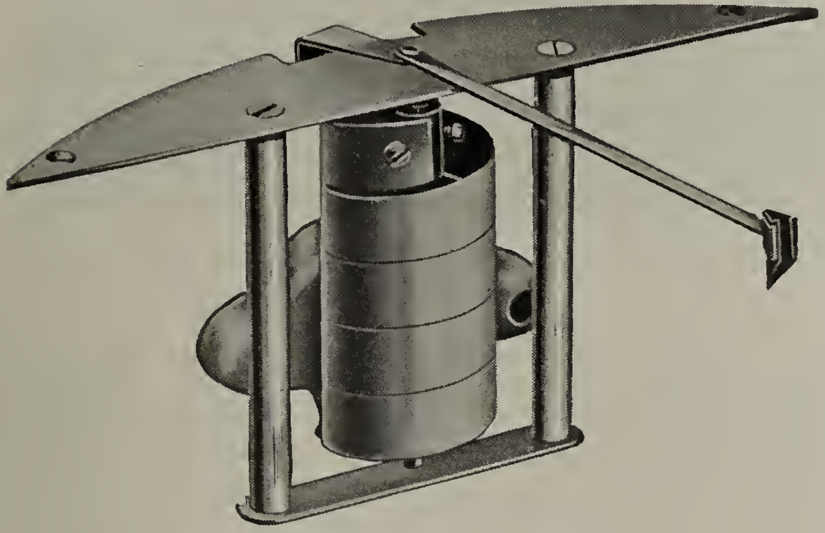
Zelnicker Addition

Mr. Robert C. Clifford, formerly district Sales Manager for The United Cast Iron Pipe and Foundry Company, for four years in charge of their St. Louis and Kansas City offices, is now associated with Walter A. Zelnicker in charge of the Rail Department.

The Union Chain & Manufacturing Company, Seville, Ohio, has increased its capital stock from $20,000 to $40,000 in order to take care of its rapidly growing business. A New York office has been opened at 47 West 34th Street, in charge of J. R. Shays, Jr.

A New Recording Thermometer

The Brown Instrument Company of Philadelphia is placing on the market a new type of recording thermometer, for temperatures to 800 deg. F. or 425 deg. C., which embraces a number of original features. This instrument operates on the principle of the expansion of gas with change in temperature. A bulb of copper containing nitrogen gas under pressure is connected to a recording instrument by a small copper tube protected by flexible steel tubing.



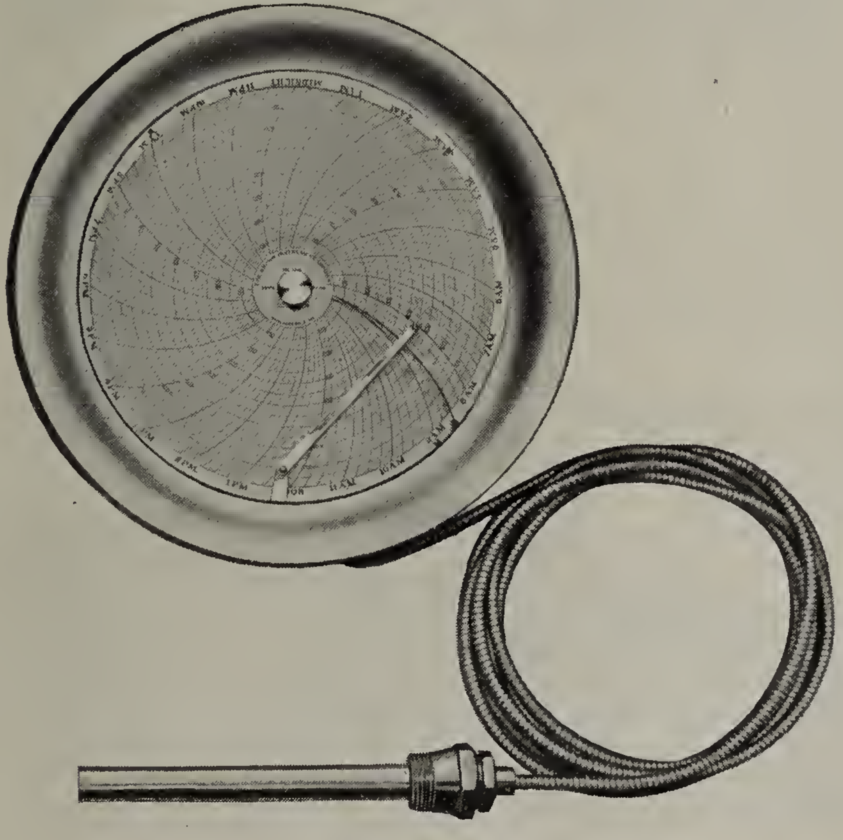
Helical Spring and Recording Arm

The recording instrument has a helical spring somewhat similar to that used in pressure gauges, and the expansion of the gas in the bulb exerts pressure which is conveyed by the capillary tube to the helix which expands proportionately. This helix is directly connected to a recording arm which marks on the record chart.

This type of instrument can be furnished with tubing as long as 100 feet if required so that the recording gauge can be placed as much as 100 feet distant from the point where the temperature is measured. This permits of its application in numerous processes where it is desirable to keep a constant record of temperature on a chart.

This instrument is made also in indicating form where desired to indicate the temperature on a dial instead of recording it on a chart. It is furnished with a number of different types of bulbs, either with threaded connection for insertion in mains and pipes, or with lead coating to withstand chemicals and acids.

They can be used to advantage to record the tempera-



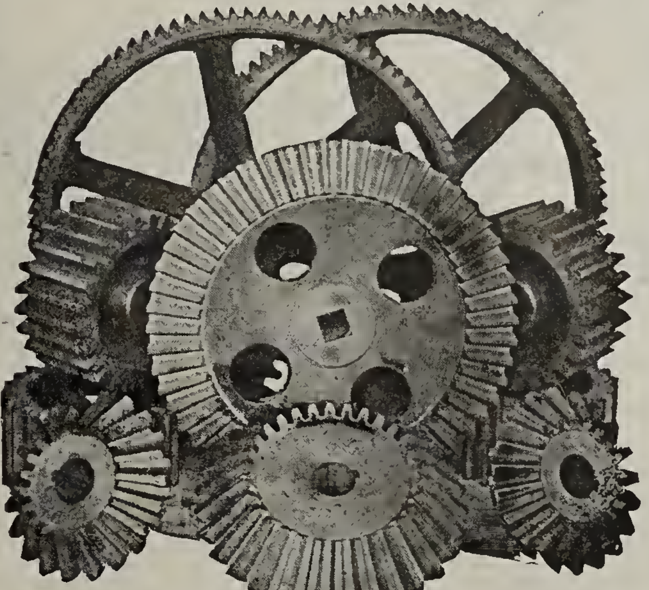
The Recorder

All **good** brick machines are equipped with

NUTTALL

Cut-Steel

GEARS



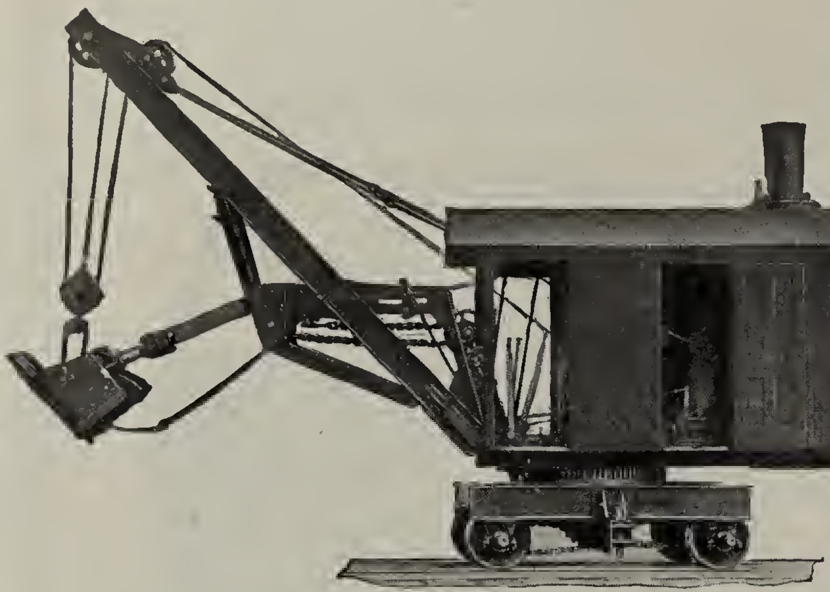
Too many brick machines that are **otherwise** good do not measure up to expectations because they are made with cast tooth gears. If **your** machines are in the "otherwise" class go out and keep your eyes on the gears. It won't take you long to realize why you don't get all the capacity you expected, or why your power fuel costs are too high.

Change your present machines to cut steel gears—then insist on cut steel gears on future purchases, and you'll cut down power cost and repairs.

Ask us for Bulletin No. 19.

NUTTALL—PITTSBURGH

A Thew Shovel will last 24 years



The first Thew Shovel did not look as good as this. It was not as good as this shovel. It will not last as long as the new Thews, yet the first Thew Shovel has been in continuous service 24 years.

This is what the owner says about it: "No better shovel was ever put up. It is not very handsome to look at, but is very economical in operation and does its work without any trouble. We can't say anything too good about the shovel."

The real test of any machine is the test of years. Hourly, daily or even monthly outputs are of secondary interest. The important question is what will the machine do year after year? The above statement shows that The Thew is equal to the supreme test.

The definite policy of building the best possible shovel regardless of cost of production and an honest endeavor to render the best possible service to every Thew owner makes it possible for the Thew Automatic Shovel Company to refer to any Thew owner anywhere.

Use a Thew—It pays—Join the Thew Boosters Club. There are over 300 Brick manufacturers who are loyal Thew Boosters. Write for the names of those near you.

Circular 22-C gives actual costs of handling clay.

The Thew Automatic Shovel Co.
Lorain, Ohio

One of the Kelly Trucks that Helped Supply General Pershing and His Men

ture of the waste heat from the kilns or in the drier tunnels. A special bulb can be furnished where desired to give the average temperature in a drier tunnel instead of at one point only.

The Real Test

While the motor truck has been called upon to perform any number of seemingly impossible tasks, nevertheless the duties exacted along the border in northern Mexico were the final test of the wonderful possibilities of this method of transportation.

The conditions which the motor trucks were called upon to face in this hazardous service were almost insurmountable. In fact, a motor truck expert would have thrown up his hands in despair had he been asked if such things could be done. They were done, however, without waiting for experts to pass on them, and it has been shown that the motor truck possesses powers of endurance and strength far beyond what was originally thought.

In the first place, trucks were called upon to traverse country which had really no roads, in fact, worse than no roads. The "road" in most cases was simply a pair of ruts which were harder to negotiate than no roads at all.

In many places the road was filled with shifting sand, and this was often hub deep. In other places the ruts were so deep that the trucks went in up to the axles.

That the limited number of motor trucks was able to supply General Pershing's column without any serious difficulties or delays, certainly shows that the motor vehicle is an indispensable adjunct to the proper provisioning and transportation of armies.

We, of course, knew that the motor truck had made a wonderful efficiency record in the great European war, but the conditions which it was called upon to face in Mexico were far worse than those in Europe. With the exception of the Russian front, the roads in Europe are of high grade, and the armies are constantly keeping them in repair.

It was out of the question for the United States Army engineers to attempt to build any roads in northern Mexico, and the result was that the motor truck was forced to traverse seemingly impossible stretches. That the Kelly was able to do possibly a little more than its share speaks well for the sturdiness and endurance of this master truck.

Down In Mexico

Truly the Mexican trouble has furnished enough proof of the already well-known superiority of Kelly trucks.—("Like Kelly Does.")

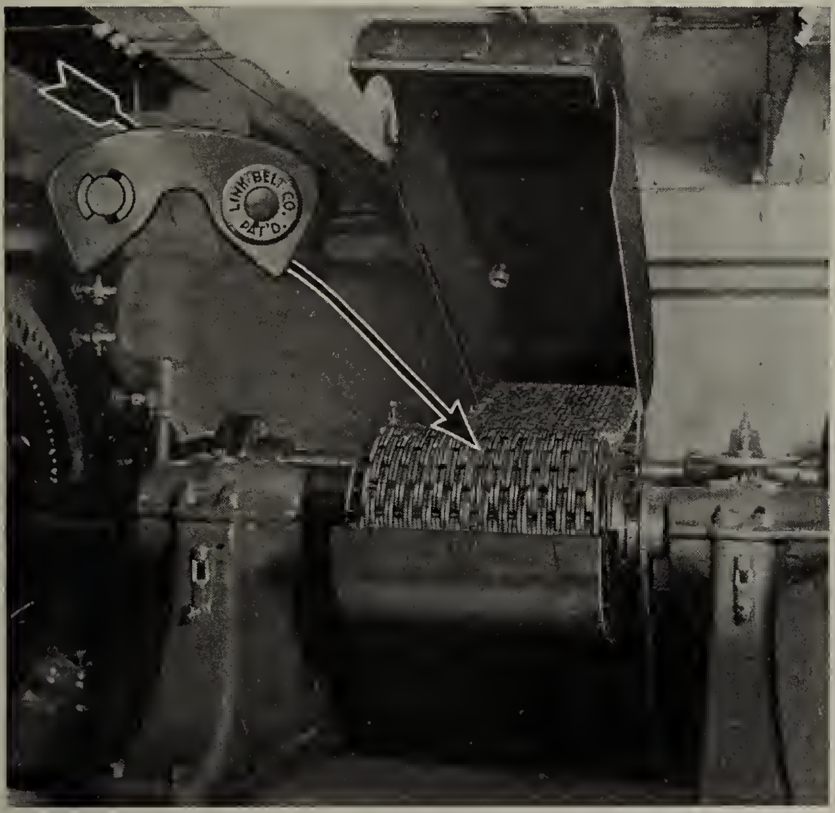
Hopley is Better

F. L. Hopley, manager of the publicity department of the American Clay Machinery Company, was taken sick about two weeks ago. At first it was undecided what the trouble was but later in a consultation of doctors, September 27th, the diagnosis was appendicitis and he was operated on in the Crawford County Hospital, Bucyrus, Ohio.

As recently as Sunday afternoon, October first, the good word was that "he is improving rapidly and resting easy." Certainly cheerful words to his uncounted friends.

For Link-Belt Silent Chain Users

The Link-Belt Company of Chicago have just issued a new pamphlet that is of immense value to users of the Link-Belt Silent Chain Drives. It deals exclusively with lubrication and casings, and discusses fully the use of both in the operation of their drives.



540 h. p. Encased Link-Belt Silent Chain Generator Drive

Zelnicker's Bulletin

It is a periodical of twenty to forty pages listing all kinds of equipment for use in clay plants. The list includes rails, cars, clam shell buckets, Corliss and slide valve engines, hoisting engines, crushers, locomotives, etc. The listings are all special bargains located in warehouses in practically every state. The September bulletin from the W. A. Zelnicker Supply Company in St. Louis can be had for the asking. It contains forty pages, and is the most complete they have ever issued.

The New York City branch of the Gandy Belting Company, Baltimore, Md., is now in charge of August F. Wydeen, with the title acting manager—succeeding Fletcher P. Thornton, manager.

The use of Schofield-Burkett excavators is steadily increasing. I. E. Burkett, manager and chief engineer of the Schofield-Burkett Construction Company, Macon, Ga., manufacturers of the excavator, has just returned from an extended trip thruout the East, where he has been teaching some of the brickmakers how to save labor in their clay banks and still get better results in mixtures. He reports business as being very good in that territory.

Keep the Plant Busy in the Winter Days

The arrival of freezing temperature in the shale and clay mining territory compels many clay-product plants to shut down. Their production is limited by weather conditions and only a partial profit is derived from the plant.

By resorting to new methods of operation and

By Blasting With

DU PONT

RED CROSS

Low Freezing Explosives

many of the brick and tile plants are able to keep their machinery supplied with raw material throughout the winter months.

Why have an idle plant when a few charges of explosives properly placed will supply an abundance of shale and clay for steam or hand shoveling? Get the maximum production and profit. Operate a 12-months' plant—not one governed by Jack Frost. Keep your plant working every day.

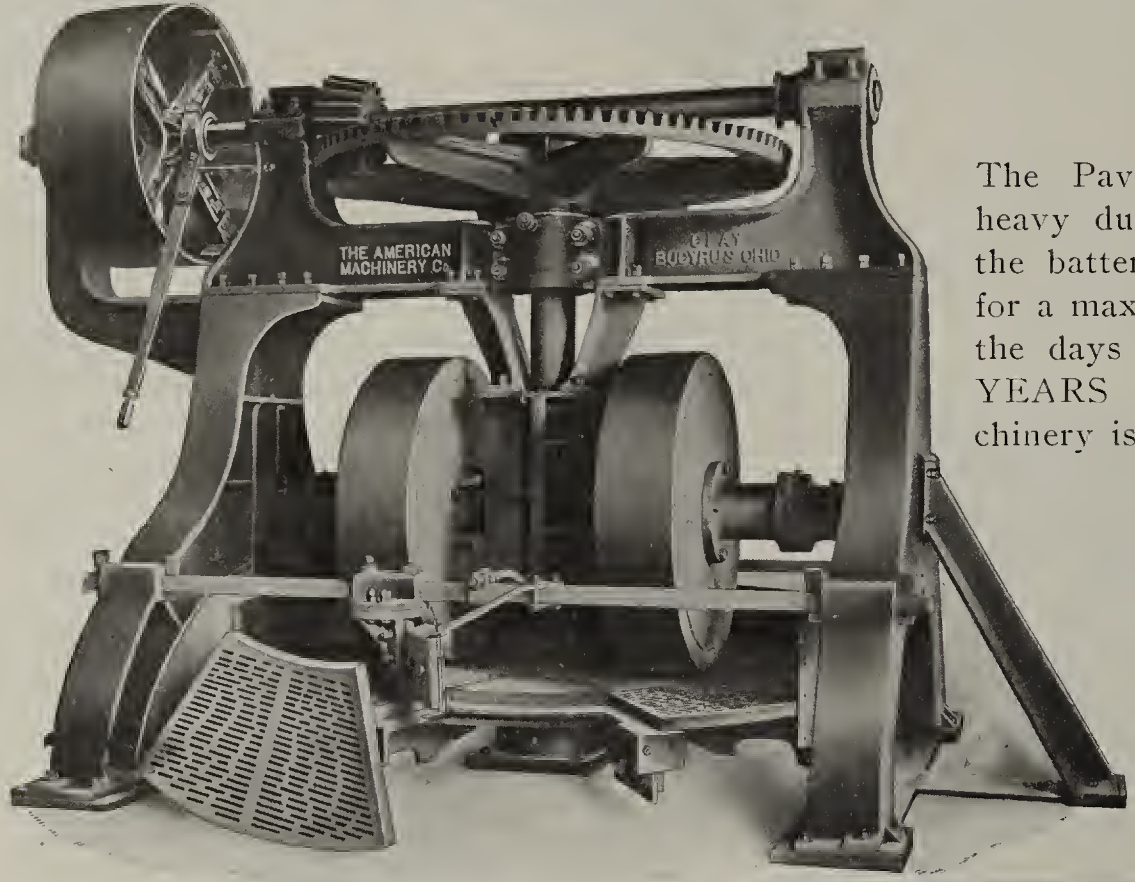
Learn this new way to blast shale and clay.

Send for free booklet: "Explosives for Blasting Shale and Clay."

E. I. du Pont de Nemours & Co.
Powder Makers Since 1802
WILMINGTON, DELAWARE

AMERICAN FROM START

A COMPLETE MACHINERY LINE FOR PAVING



The Paving Block plant is always on heavy duty. The machinery must stand the batter—be able to deliver good ware for a maximum output day after day, until the days of service have lengthened into YEARS OF SERVICE;—then that machinery is satisfactory.

We show here our complete heavy duty line for Paving Block plants. **None better can be made.**

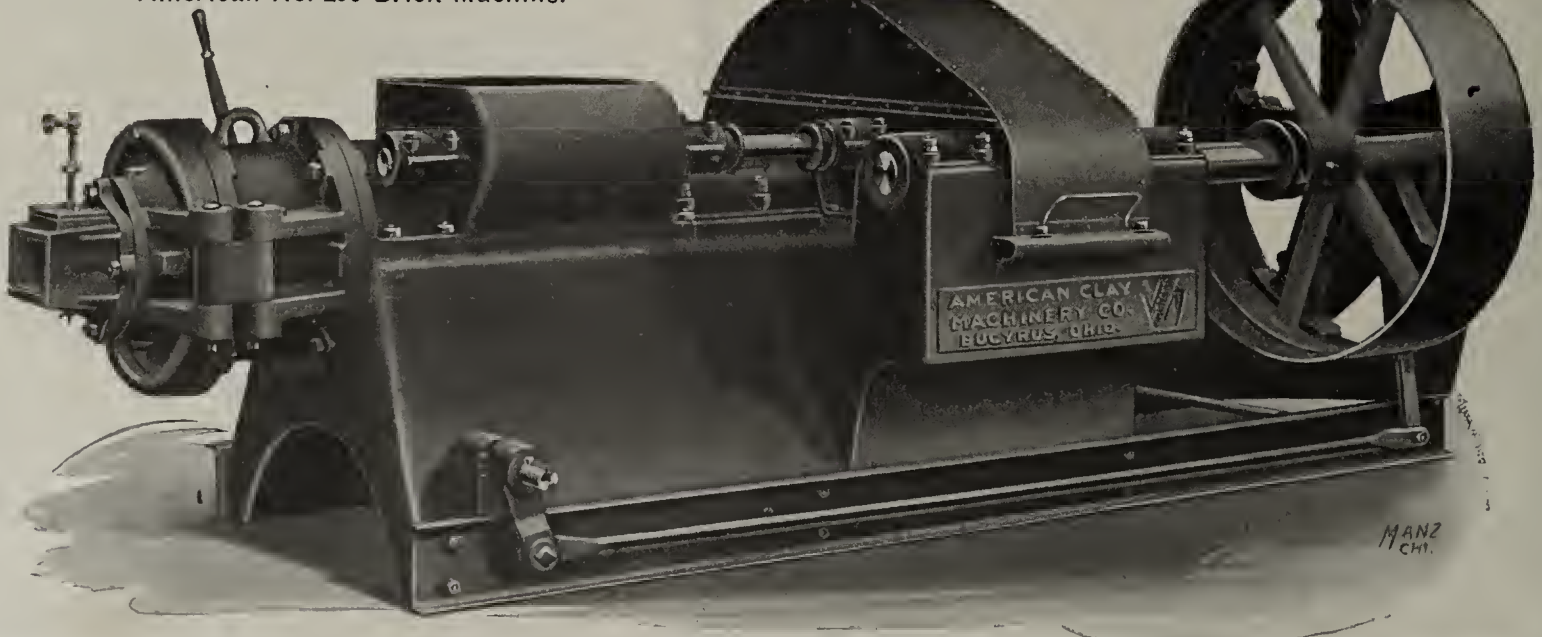
American No. 57 Dry Pan.

Each machine is designed and built with the care and skill that can only come from the continuous consultation of our experts and the wisdom that comes only from years of experience.

THE
AMERICAN CLAY MACHINERY CO.
BUCYRUS, OHIO.

American No. 291 Pug Mill.

American No. 290 Brick Machine.


AMERICAN CLAY MACHINERY CO.
BUCYRUS, OHIO.
MANZ CHI.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Just Crammed Full of "Meat"

is this number of *"Brick and Clay Record,"* which you now hold in your hands. We are sure that even a cursory examination of the following pages will bring home this fact to you.

¶ It contains all of the news that is *news,* and then there are three first-class technical and plant management articles contributed by *some of the best writers in the industry,* to say nothing of the usual helpful departments, such as "The Superintendent", "Marketing the Product" and "Cost Accounting for the Clay Plant."

¶ While we are urging you to make your business one hundred per cent. efficient, we are taking some of our own medicine and are striving with might and main to produce a *one hundred per cent. clayworking paper* with a service that *serves.*

¶ Three weeks will elapse between this and the next following, or *November 7th issue.* Therefore, you will have plenty of time in which to carefully read and digest these many interesting and valuable features.

¶ Now, about the *next issue.* In the first place, there will be an article on the Vermilion county (Illinois) brick roads, where a slightly different method of laying monolithic highways is being followed than that described in this issue.

¶ *"From Togo to Togo,"* (with apologies to Wallace Irwin) will make you laugh while you learn something.

¶ *"The Scientific Control of the Factory. Part II. The Remedy,"* by Dwight T. Farnham, will have a place in the *November 7th* issue, as will also *"Kiln Arches,"* by E. E. Libman, a graduate ceramist from the University of Illinois, who won one of the prizes offered in *"Brick and Clay Record's"* recent essay contest. We could go on down the entire list telling you of all the good things that await you in the *November 7th issue* but lack of space prevents.

¶ ***Watch for It! Get It! Read It!***

The EDITOR'S CORNER

THERE ARE TWO POINTS that stand out before all others in the president's annual address read before the National Paving Brick Manufacturers' Association at Terre Haute, Ind., recently, by C. C. Blair. They are, first, that the association should immediately begin to give some attention to the subject of cost accounting, and secondly, that no time should be lost in rallying sufficient support for a comprehensive advertising and publicity campaign, nation-wide in scope and powerful enough to interest the majority of tax payers thruout the country in brick roads.

Most of us are familiar with the efforts of the Institute of Paving Brick Manufacturers looking toward a better knowledge of what pavers are costing to make and what the logical cost should be. A committee was appointed by the Institute at its Portsmouth (Ohio) meeting in April but, judging from the silence of this committee, not very much has been accomplished. President Blair's suggestion regarding uniform cost keeping should, we believe, be followed up and a competent committee appointed at any early date to take this matter in hand.

The determination with which the aforementioned gentleman said: "We are going to do it (conduct a national advertising campaign) anyhow whether you (those who do not belong to the association) help or not," is certainly to be commended and reveals a deep conviction that it is the right course.

Practice Reciprocity

SOMETIMES WE THINK that co-operation, like patriotism, is dead. However, upon second thought, we are rather inclined to believe that some people are dead to co-operation.

But not so a brother worker or dealer in clay who writes us under a recent date from a Middle West city, asking for the names of some concerns who manufacture salt glazed vitrified segmental sewer tile. He states that his city will soon enter upon some extensive sewer improvements and, while he does not handle the above-mentioned product, he is anxious that some manufacturer of burned clay wares that can be used for sanitary construction work know about it and get on the ground before concrete has had a chance to do its deadly work.

This harks back to the principle of reciprocity which we were urging so strongly only a year or so ago in these columns.

It doesn't take long to dictate a letter to another manufacturer or to us when you see an opportunity for burned clay going to waste of which you yourself cannot take advantage. Don't stand idly by watching competitive materials take the business. Do something.

Getting Down to Business

WE ARE TOLD by those who have in hand the working out of a program for the annual meeting of the American Face Brick Association and the Face Brick Dealers' Association which is to be held at French Lick, Ind., on December 6th, 7th and 8th, that "the entertainment feature will be kept in the background."

There is a wealth of meaning in these few words. They indicate that the face-brick manufacturers and dealers are tired of wasting their time and good money to listen to "hot air" and to attend the "annual banquet" where, like prisoners, they are chained in their chairs, suffering the torture imposed upon them by long-winded orators (?) who talk about everything but that which is of interest to their audience.

It looks very much as tho those who are concerned in the manufacture and sale of face-brick are going to "get down to brass tacks," at the French Lick convention and, instead of returning home with a big head and an empty pocketbook, they will get back to their offices with a clear intellect and a satisfaction that springs from work well done—a new idea looking toward the solution of a distressing manufacturing problem, better marketing conditions, more light on cost, a better understanding between manufacturers as to what should constitute a "first" and a "second," also a clear conception of what "quality" means.

A Bursted Bubble

THAT the much-heralded general sympathetic labor strike in New York City is a failure, is now admitted by those who have kept closely in touch with the situation. In fact, one newspaper goes so far as to call the proposed walk-out a "fizzle." But the New York "American" thinks that the verdict which claims that the strike is "dead" is hardly fair, inasmuch as "nothing can die until it has first been alive; and the general strike was not even born." To those who have analyzed the situation, it looks very much as tho there has been too much shouting about the strike on the part of labor leaders who lacked the support of the rank and file of the workmen. Therefore, the strike perished in its early infancy due to a lack of nourishment from its foster parents.

All of which leads to the conclusion that the men preferred to remain at their daily tasks and to receive their regular wages than to have "hearts as big as barrels," as one of our correspondents puts it.

The past year has seen considerable agitation in certain clayworking centers on the part of would-be labor leaders, stirring up unrest among clay plant workers who have, up to the present time, been well satisfied. But the seed of discontent which such agitators are sowing is falling, for the most part, on stony ground.

The failure of the New York strike should be a good lesson to the workman who is always discontented and should act as a vindication of the good judgment of that class of employes who believe in fair play.

It would not be a bad idea for those workers who contemplate disturbing the natural order of industry to think twice before taking a step which might result in disaster to their cause.

SEE "LAST WORD" *in*

CLAUDE C. BLAIR
The President With a "Punch"

* * *

More Than Two Hundred and Fifty Paving-Brick Manufacturers, Highway Engineers, Road Commissioners, Writers on Good Roads and a Host of Others Interested in Seeing the Nation Lifted Out of the Mud, Witness the Building of the "Monolithic" Type of Brick Road at the Progressive Little City of Paris, Ill., October 6

* * *

BREAKING IN UPON the peace and autumnal loveliness of an Indian summer in the Wabash valley, the paving-brick manufacturers, their friends, highway engineers and others interested in good roads, staged a conference and demonstration that will go down in road-making history as an event characterized by genuine interest, enthusiasm and uniqueness.

Proof of the interest and enthusiasm manifested can readily be obtained from the clerk of the Hotel Deming at Terre Haute, which hostelry was filled to over-flowing with brick road "boosters." The fact that the city of Paris, Ill., was jarred from its usual placidity by the blaring of a brass band and the influx of some two hundred and fifty additional inhabitants is also sufficient evidence of a "regular" convention spirit.

The convention was unique in that it covered the inspection of some brick streets that are time-honored, having been laid a quarter of a century ago on a broken stone foundation with a sand cushion and cement grout filler. On the other hand, the visitors saw the latest type of brick pavement being built, wherein the sand cushion is dispensed with and a concrete foundation used, over which a dry mixture of sand and cement is spread, followed by the laying and grouting of the brick while the foundation is yet "green." Here we have the new and the old—the type that has been tried and not found wanting, and the type that has still greater possibilities in store for it. This is a feature of the convention that may have escaped some. Those who studied the situation closely, however, could not help but be impressed by this striking demonstration of the progressiveness and superiority of the brick-paved road.

VISITORS GATHER EARLY

On the evening of Wednesday, October 4th, the delegates to the gathering began to congregate in the Hotel Deming at Terre Haute. As each registered he received his badge, the official program, interurban tickets for the trip to Paris on Friday, tickets for the banquet at the Deming on Friday evening, as well as a pamphlet of instructions covering the day to be spent across the state line in the Illinois city. F. A. Churchill was as usual on hand, but instead of handing out carnations, he placed a rose on the coat lapel of every delegate. From this time, until the last good roads rooter departed on Saturday following, there was no break in the

"JIM" HOSKINS
Otherwise Known as "The Mayor of Taylorville," Who Made the Visitors Feel "Tu Hum" at "Terry Hut"

BRICK ROAD BUILDING

President C. C. Blair of the National Paving Brick Manufacturers' Association Strikes Keynote of Convention When He Urged Serious Consideration of Cost Accounting, Gathering of Data Showing Brick Road Failures and Pictures Possibilities of Powerful National Advertising Campaign to Those Who Are Now Without The Fold

* * *

WILL P. BLAIR
The Veteran Secretary

program of the business session and sight-seeing trips.

As was announced, the morning of Thursday, October 5th, was given over to the consideration of the association's business affairs. After the meeting was called to order at ten thirty by President C. C. Blair, the first step in the procedure was the roll-call of the membership. A motion was made and carried suggesting that the reading of the last annual meeting's minutes be dispensed with, which led up to the president's annual address, given in full herewith.

WILLIAM T. BLACKBURN
Who Received the Delegates at Paris, and Who is the Originator of the Present "Monolithic" Type of Construction

URGES IMPORTANCE OF COST ACCOUNTING AND NATIONAL ADVERTISING

The year we are bringing to a close in our association work has been, in many respects, the most successful we have ever enjoyed.

Your secretary and assistant secretary will in their respective reports give full details of the year's activity. Their modesty, however, has prevented them from taking full credit for all that has been accomplished.

"Dependable Highways," the little publication we started, something over two years ago, with a circulation of three or four thousand per month, has passed the ten thousand mark, and is growing in power and influence much faster than in circulation. We do not believe there is anywhere a journal of similar character that can compare with it.

We feel that the membership should co-operate to the fullest extent that "Dependable Highways" may be sent regularly to all persons of influence, and all officials interested in highway improvement, so that opinions favorable to brick may be crystallized before some crisis arises, that would make the effort too late.

In addition to the great mass of daily detail work, the office has most efficiently handled under the direction of the technical investigation committee, a complete revision of all specifications.

This, you will readily appreciate, was a task of enormous proportions. The active officials and the office force are giving the association full value—they never lose a chance to get in a good word for brick pavements. No matter where you turn, you can not help but be impressed with the unbounded enthusiasm and energy of our assistant secretary, and more important still, the careful conservative oversight of the secretary of the varied work of the association, which assures to us the confidence of the public and the co-operation of civic influence so necessary to our interest.

SUGGESTS COLLECTING DATA ON FAILURES

The standing committees have been, and are now, faithfully performing their work. More good, we feel sure could be accomplished by frequent meetings thru the year, for the purpose of discussing matters that come within their province with a view of strengthening and stimulating the work of the association, as well as making such suggestions as they may deem of importance to the secretary. We would urge further that, with the help of individual members, data of value to the association can and should be collected; we refer to pavements that have failed. Wherever you find them (and there are plenty of them) make a study and find the cause, report your finding, and we will soon have records that will be of great use to the industry.

Another matter of importance that has been entirely overlooked by the association, altho some little progress has been made by kindred organizations, is the matter of uniform costs. The subject is too broad for discussion at this time, but we feel that a good live committee should be put to work on this as soon as possible. If we could meet our neighbor and talk to him in terms and figures we could both understand, it would not be very long until brick would be sold at least above cost.

A View of the Shale Pit at the Terre Haute (Ind.) Vitrified Brick Company's Plant Where the Material for "Ironstone Block" is Gathered

We want to thank every member and every person connected with the association for the hearty support they have given to the office committee and to all the activities of the past year. It seems to us that the team work has been well nigh perfect.

The faithful few who have so loyally supported the association from its inception with their money, time and advice, can not help but feel gratified at the progress that has been made.

The unquestioned position that is occupied by the association reflects glory, not only on its members, but also on the industry as a whole. There are a large number of manufacturers who are not supporting us; to them we appeal to come with us and help the cause.

PICTURES POWERFUL ADVERTISING CAMPAIGN

We are doing all we can with the funds that are now available. There is much more to be done and it should be started at once. Think this over, Mr. Manufacturer, who is without the fold. How would you like to see a national advertising campaign of such proportions as would compel the attention of every city and hamlet in this country? Other material associations with products of far less worth are pushing their material to the front in this manner. We can do it with your aid and do it now. We are going to do it anyhow whether you help or not, but it is going to take a long time and you are going to get some more benefits that do not belong to you.

Are you going to stand idly by and let us bury you, or are you going to come along and enjoy the satisfaction of a work well done? Again we appeal to you—to your reasoning powers. Where would you be today without the influence of the association, competing with over one hundred different forms of pavements, many of which are extensively advertised and backed up by armies of promoters?

It is high time to stop arguments among ourselves, and present a united front.

J. W. Robb of the Clinton (Ind.) Paving Brick Company Giving "Jim's" Plant the "Once Over"

After the hand-clapping had subsided, the president called for the annual report of the secretary, Will P. Blair, which is also reproduced here in full:

SUGGESTS COLLECTING YARDAGE DATA TO SHOW NINETEEN-SEVENTEEN MARKETS

We wish to express our deep sense of obligation to the inspiring support of the office board whose advice was continually at our command during the past year and to the faithful and loyal assistance of the entire office working force.

How the Crushing Station Looks from the Pit at the Terre Haute (Ind.) Vitrified Brick Company's Plant. Here the Shale is Given a Preliminary Crushing Before Being Sent to the Pans

We wish to strongly recommend to such members who have never spent a day in the offices of the National Paving Brick Manufacturers' Association that they do so at their earliest convenience, that they may know something of what is being done in behalf of the industry, entailing an incoming and outgoing mail totaling during the year, 170,690 or a daily average of 558 pieces, aside from the special preparation of newspaper and magazine articles, lectures, technical and other papers, added to which is the make-up in words and pictures of "Dependable Highways."

We wish to urge that the association take steps to insure the collection in 1917 of statistical data which will show the yardage of paving-brick as follows:

In what state?
For city or country road?
In cities of over 100,000 population.
In cities of over 25,000 and less than 100,000.
In cities of over 10,000 and less than 25,000.
In cities of less than 10,000.
Under what specifications laid?

Knowing where our markets are found in 1917 will assist very greatly in directing effective aim for increasing the same.

An appointment of committees of one member each to bring into this membership any acceptable sinner that is hanging on the outside.

WHAT THE ASSOCIATION IS DOING

A report of the activities of the association's work is one thing, but a report of the results is quite another thing. A report of judgment as to what ought to be done requires a measure of courage, not always entirely sufficient to prevent one from speaking lightly where harsh and disagreeable things would put into the picture more clearly the things that ought to be seen. Neither is judgment so easily exercised nor can one hope that all will coincide with what one may think to be for the best. Nevertheless, a report which shall encompass these things ought to be made which shall give to this membership some idea of the excuse for the existence of the organization.

Evidence of our activity is found within the chambers of every state highway department in the country.

We pay a visit in person or otherwise, to every city and town of sufficient size in the country to promise street improvement.

We go into the smaller communities such as counties and townships where the condition of the country road is being considered.

We go to these official headquarters continuously, for at such places, new names appear at frequent periods.

North Seventh Street, Terre Haute—A Brick Pavement That Has Been Laid According to the "Monolithic" Type of Construction

We go to them as tho they were fixed and stable, but by reason of the personnel undergoing a change from year to year, we must and do so repeatedly, telling them of our industry, of our product, and of the benefits that follow if they will but use it.

We tell them as best we can, how to use the product to their greatest advantage. We are not only exercising directly thru officials, such persuasion, to favor the use of brick, but we are constantly bringing to bear the leverage of civic and institutional organizations of every kind and character, to further induce that favor. We do our utmost in the scramble of the single isolated game.

These agencies thru which we work are the

Citizen Taxpayer,
The Town Council,
The Township Trustees,
The County Board,
The Fiscal Court,
Chambers of Commerce,
The Civic Club,
The College,
The Engineering Associations,
Welfare Clubs.

Political and religious organizations. From Congress of the United States to the sewing circle of the little church around the corner. To the individual or to the organization. This energy and effort can not be perfunctorily, mechanically or ignorantly performed. It must be precise and accurate. At the same time it must in each particular instance be directed to meet the particular requirements and necessities of the situation, which must be thoroly understood or our work can not attain success.

A Portion of South Sixth Street, Terre Haute, Which Has Passed the Quarter Century Mark of Service and Whose Brick Surface Has Cost Nothing for Repairs Due to Wear and Tear

CONDITIONS HAVE CHANGED IN PROMOTING BRICK

To know thoroly what supports existing sentiment, and influences men as to their preferences is a prerequisite to turn them to our way of thinking. What would have accomplished favorable judgment for the use of brick a few years ago will not answer today.

Mayor W. H. Hoff of Paris Handing the City's Keys to the Incoming Delegation. The Mayor Surprised Himself by Making a Speech (Something Unusual for Him), Wherein He Paid a High Tribute to the Brick Streets and Roads of Paris Township and Edgar County

Conditions have changed.

Many recall the day when towns had no pavements at all and few kinds of paving material were upon the market. The effort then was to start an improvement and if brick was the first in the field in that particular locality, it was not a difficult matter to persuade its use.

There are now a hundred or more road and street improvement materials pressing for a share of the vast amount of money that the people are putting up. The mad contest that is going on presents a condition that demands a closer file of our ranks and above all a determined and steadfast purpose to march thru the mob in a solid body. It is no time for jealousy or individual quarrel while the fight is raging. It is no time to lose one's head, become dazed or despondent.

"What's the matter?" should be answered by a quick and unerring response that will close up and protect our neglected and exposed points. However secure our many advantageous possessions, our energies should be directed toward a stronger fortification against attack.

Some Idea May Be Obtained from the Above Photograph of the Horde That Descended Upon Contractor Alan J. Parrish and Assailed Him With Every Imaginable Kind of a Question Concerning "Monolithic" Brick Pavements

What is our strongest inducement to persuade recruits to our side? Will any one say that it is not a splendidly built brick street, earning satisfaction, praise and pride on every hand?

Where lies our most vulnerable point in the great field where the contest is going on? Is it not the scene of a lost opportunity where the brick street is one toward which you do not care to direct attention and which has brought about a condition that must be rehabilitated completely? To do so will require our best equipped centimeters with the entire battery firing as a unit.

To rehabilitate a paving condition that is unsatisfactory, we are obliged to make promises for better conditions for the future.

Shall everything we do sustain those promises?

Shall wrongs be righted on the spot?

Shall timidity on the one hand, or an over-awing attitude of the buyer withhold a rightful supervision where it should be exercised?

Or shall history repeat itself and make future conditions harder and harder, or shall our progress be made easier and easier?

I am assuming that men engaged in the manufacture of paving-brick loyally believe the inherent worth of paving-brick is unsurpassed, otherwise they are but little use to themselves, an injury to the public and should be out of the business.

Five of the City Traction Company's "Specials" Took the Visitors Out Near the Waterworks, About Two Miles North of Paris, Where they Witnessed a Brick Road in the Making

SPECIFICATIONS SHOULD BE STRICTLY OBSERVED

This association during the past year has considered in a broad way the demands of this hour and has prepared thru its technical investigating committee in a most painstaking effort, specifications that will protect the interest of this industry if complied with. Have we the courage to see that this is done?

The engineers and the public are receiving these specifications with open arms. It is upon us to see that no taint of suspicion or doubt is laid upon these specifications by a failure to explicitly follow the details and thereby lay a new, heavy and unjust burden upon paving-brick.

The manufacturers have during the past year supplemented the efforts of the national association by organizing and placing in the field, under competent direction, field men who come into a close contact with the authorities whose duty it is to provide directly for street and road improvement. These men will be able to break up the impositions of the vampires preying upon the public and also meet manly competition when found. This we believe to be timely and necessary and it ought to be supported by every manufacturer as every manufacturer ought to heartily support the national association.

Even the Band Stopped to Watch the Busy Workmen Dump the Concrete for the Foundation, Level it Off and Lay the Brick, All Within a Few Minutes

Such aid organization, together with "Dependable Highways" paying its visits to thousands every month, embraces a combination of effort that should and, I believe, will yield a return that will fully compensate for all it costs. Rather I should say it is a necessary and legitimate cost of producing and marketing which should in all cases be added to the selling price. In no instance should it ever be regarded as a donation.

BRIGHT FUTURE AHEAD OF PAVING INDUSTRY

The paving-brick industry, stripped of the petty and vexacious trials that creep into every manufacturing enterprise requiring exactions and unusual trouble characteristic of the past year, bears a relationship to present needs and necessities of the use of the material that augurs a bright future. The country is bound to find its road ultimatum in paving-brick. The influence of national aid for highway construction, in the securing of which we take no small amount of pride, attaches an importance to road building which means a more dependable and durable road. A million or more automobiles demand the abolishment of the mudhole and the great mass of farmer taxpayers is sensing the fact that the glide and the trot over a smooth road beats the pull and the tug.

Better times are ahead. The march to place where rations are to be distributed depends upon ourselves. A steady step, with a step altogether, will get us there as surely as we speak these words.

No convention of the National Paving Brick Manufacturers' Association would be complete without some word from that untiring, indomitable, energetic human dynamo, otherwise known as the genial assistant secretary—H. H. Macdonald. Concerning the publicity activities of the association—work that has already paid a handsome dividend—Mr. Macdonald said:

Alan J. Parrish, the Paris (Ill.) Contractor of "Monolithic" Fame

WOULD HAVE FARM PUBLICATION AND LAUNCH ASSOCIATE MEMBERSHIP CAMPAIGN

We believe that this time and this gathering mark an epoch in the affairs of the association. The organization is in a prosperous condition financially. Success has attended our previous measures for brick highway promotion. There is every indication of greatly increased highway expenditures within the next few years.

We believe, therefore, that we can now commence definitely certain measures which have been discussed tentatively in the past. Our consideration of national advertising has developed a preference for a modest, tho dignified, start in this direction at an early date. No doubt all are in accord with such a course and we expect to see the publication of such advertising undertaken during the current fall and winter in anticipation of 1917 contracts. As the results of this policy become apparent and certain outside manufacturers are led to see the further work the association is doing, we will be able to enlarge and develop our advertising policy to the proportions employed by some of our rivals.

ADVERTISE TO REACH THE TAX PAYER

As we have remarked before, our publicity measures in the past have been rather too exclusively aimed at the official and engineer without proportionately as great attention to the public at large. Without abandoning any of our previous efforts, we must reach the ordinary casual reader of current publications and brand his consciousness with the fact that brick-paving actually solves the highway question.

Shoveling the Aggregate Into the Mixer That Makes the Concrete for the Base

There is both an offensive and defensive necessity for this. The advertising pages of farm papers, of popular magazines and weeklies are becoming the market place of the modern world. People get their ideas of commercial progress from this source. Not to be represented in this display of the world's commodities is to invite the conclusion that we are a negligible or disappearing factor in the realm of highway improvements.

Time passes quickly doesn't it, for it is hard to realize that "Dependable Highways" is now well along in its third year. The little magazine is gaining friends and influence with each succeeding issue. It voices paving-brick in a consistent and steady manner and never permits our material to be forgotten or not considered. One of the most valuable features of the magazine from a publicity standpoint is that it compels us to dig up good stories which are acceptable even to the most influential engineering magazines in the country. These articles are, of course, offered with photographs to other magazines before they appear in "Dependable Highways." By doing this, we dispel any idea that we are trying to "scoop" anybody.

More assistance in securing advertising from collateral lines of trade, such as deal in trucks, steam shovels, machinery, contractors' supplies, and so forth, will be appreciated. When the manufacturers of these articles understand that the association stands behind its publication and learn it from association members who are their own customers, the advertising question will be solved.

MORE MONEY WANTED TO PAY CONTRIBUTORS

The desire for increased revenue is dictated by a desire to make "Dependable Highways" a better publication. Altho we have been fortunate enough to secure most valuable, interesting and convincing testimony from men in high positions, that deals incidentally with paving questions, so far we have paid nothing to them for their articles. Such reviews as those contributed by Major Bond of the United States Army, Commissioner Bishop of the Cleveland Health Department, and others, have a value far beyond the interested "boosting" that comes from within the brick fraternity itself. Words from these men bear an influence to many people that have a feeling of doubt toward anything coming from a man financially interested. Happily, however, this feeling is not entertained by a great majority of the people who readily accept and recognize sincerity, even if it does comes from the fountain head.

The association's success in the publishing field we attribute largely to a well considered editorial policy which combines brief and popular treatment of themes with technical accuracy. The association's experience fits it to apply this policy to another field, not strictly in the realm of highways, but one

Chief Engineers W. W. Marr of the State of Illinois and Clinton Cowan of Ohio, Discussing a Feature of the Edgar County (Ill.) "Monolithic" Brick Roads, With the Illinois Highway Engineering Staff Grouped Around in which more good for paving-brick can be accomplished indirectly with an influential portion of the public than can be accomplished directly by an avowed brick journal.

PROPOSES PERIODICAL TO REACH THE FARMER

In brief, we propose that the association consider the feasibility of standing sponsor for a farm periodical of modest dimensions, published with the same editorial, typographical and artistic care devoted to "Dependable Highways," and that this periodical, while not obtruding its mission, be used to exert a continual pressure for brick roads and for the use of paving-brick about farms in such structures as barn floors, feeding platforms, areas, silos, troughs and buildings.

While not essaying to produce a great and oracular authority on every phase of agriculture, we believe that we can turn out a journal which will be a welcome guest at every farmer's reading table.

The great future field of highway construction is the rural field. Farmer sentiment with regard to materials and methods will largely rule. This sentiment is not easily created or changed when it is created. Hence the continuous quiet pressure that we could exert in such a journal would earn dividends far out of proportion to the enterprise necessary to keep it going.

R. T. Stull; W. R. Barnhart of the Medal Paving Brick Company, Wooster, Ohio; E. P. Foster of the Bessemer Limestone Company, Youngstown, Ohio, and F. R. Carter of Peoria, Ill., Posing for the Camera Man

This journal need not be an expense to the association. We have learned from "Dependable Highways" to trim our expenditures to our means and to expand as support expands. With an advertising field that embraces everything from needles to threshers, we are confident that this journal can be made self-supporting practically from the start.

While government aid for rural highways will soon be forthcoming and increasing attention should be given to the rural field, we do not urge the farm publication as an immediate step. We merely suggest its feasibility and advantage as soon as more pressing matters, such as the addition of new members and more revenue for national publicity have received prior attention.

A SOURCE OF ADDED REVENUE

The question of increased support is vital to the general activities of the association. One source that has not been developed to its limit is that of associate memberships. The purpose of our associate memberships is to permit participation in association activities by manufacturers' representatives, machinery manufacturers, and others, who have their own good reasons for desiring to see our efforts prosper.

In the opinion of your assistant secretary, perhaps too restricted a view has been taken of the province of this membership. It might be called to the attention, not merely of brick dealers and salesmen, supply and equipment men, but to any person or concern which has a direct interest in paved highways.

H. S. Renkert of the Metropolitan Paving Brick Company, Canton, Ohio, and Charles H. Frank of Nelsonville Brick Company, Columbus, Ohio, Wearing "The Smile That Won't Come Off"

The broad nature of our recent propaganda entitles us to be regarded as something more than a mere trade association. Very few good roads organizations can point to actual accomplishments in solving the highway problem that we can boast. This is being recognized by an increasing circle of influential men who do not scruple to call themselves brick advocates. There are others, such as automobile and tire manufacturers who reckon their annual profits in direct proportion to the increased mileage of improved highways and who may be found willing to identify themselves with us. In fact, everyone, who wants good roads for sentimental or business reasons and has no selfish bias toward rival materials, can be looked upon as a good prospect in an associate membership campaign.

Wetting the Brick Before the First Application of Grout Filler

NEW IDEAS ARE STEPPING STONES OF PROGRESS

In conclusion, let us urge a determined and progressive policy for this association. New ideas are stepping stones

A Very Much Interested Trio Watching the Workmen Applying Grout Filler. R. T. Stull is in the Middle

W. T. Blackburn (In the Center of the Picture) Answering One of the Many Questions Asked Regarding the Child of His Brain—the Modern "Monolithic" Brick Road

of progress. Some of the things we have suggested are new. Some of them have been debated before at these gatherings. A receptive attitude toward fresh lines of activity is indispensable in a living organization. Let us show the world the faith in our own product and in the greatness of America's economic future by daring to be original, to be forceful and to do big things.

The future of our industry and our association is what we make it. Our present prosperity will seem insignificant compared with what the next few years will bring forth if we are alert to meet our opportunities and let the world know that humanity can be effectively, economically and lastingly lifted out of the mud and out of everything that the mud means. It is a task of commercial statesmanship to which we are equal if we can first of all see it, and secondly, each do his bit toward the whole result.

COMMITTEE REPORTS

Following the reading of Mr. Macdonald's report, a motion was made and carried that the officers' report be deferred until such time as they would have an opportunity of considering the foregoing reports as submitted. The next matter of business to be considered was the reports of the various committees of the association which are epitomized as follows:

The Executive Committee, consisting of Eb. Rodgers, W. N. Alderman, C. P. Mayer, J. B. Wilcox, G. H. Francis, T.

E. H. Clifford, Secretary-Treasurer of the Terre Haute Chamber of Commerce and C. C. Blair

Eb. Rodgers of the Alton (Ill.) Brick Company Made It His Business to See Everything That Was to be Seen

Floyd W. Allen, Consulting Engineer for the Denny-Renton Clay and Coal Company, Seattle, Wash., Getting Some "Inside Dope" on "Monolithic" Pavements from F. A. Churchill

"We Ain't Mad at Nobody." Group Picture of the Brick Road "Boosters" Taken Immediately Following the Barbecue Lunch in the Water Works Park, Paris, Ill.

J. Armstrong and J. W. Robb was unable to report owing to the fact that it had not had an opportunity to hold a meeting. Arrangements were made for a getting together of this committee on the evening of October 5th.

The Advertising Committee, consisting of H. H. Macdonald, G. E. Carlyle, J. L. Murphy, F. W. Lucke and J. B. Wilcox stated that its report was contained in substance in the report of the assistant secretary.

The Traffic Committee made a verbal report, J. G. Barbour being the spokesman. While nothing of great importance has come up for the attention of this committee, the chairman indicated that it might be called upon to do some very strenuous work in the near future because of the anticipated effort of some of the railroads to raise rates on paving-brick. The members were urged to keep the committee informed of any and all local developments in this direction. This committee consists of J. G. Barbour, F. L. Manning, J. W. Robb, C. C. Barr and G. O. French.

The Office Committee, including C. C. Blair, C. J. Deckman and J. G. Barbour, reported that it had held several sessions, expressing great satisfaction with the spirit of co-operation that has been evident in its work.

The Membership Committee reported that it has written several letters to prospective members of the association, most of the names for which were supplied by Secretary Blair. As an evidence of the work of this committee, several names were presented at the convention for consideration as new members. G. E. Carlyle, J. W Robb and C. C. Barr are members of this committee.

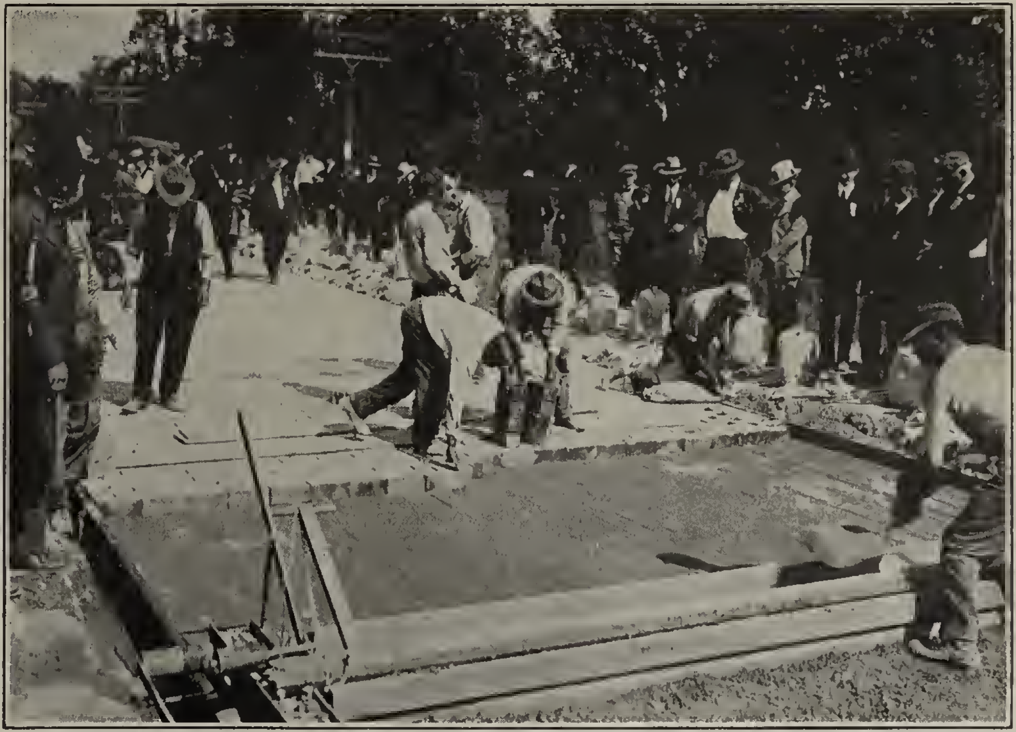
No report was made by the Auditing Committee, nor the Committee on Appeals.

The Committee on Specifications and Technical Investigation, of which S. M. Duty, Eb. Rodgers, W. P. Blair, J. G. Barbour, C. C. Blair and W. T. Blackburn are members, said that its report was contained in substance in the two new sets of specifications which have recently been issued by the association, covering both the sand cushion and monolithic types of brick pavement.

Secretary Blair said, in reporting on the work of the Special Committee on Federal Aid that paving-brick manufacturers in general could thank this body for the best legislation passed in Congress concerning good roads in many decades. At the critical point in the discussion of the recent Good Roads Bill, the committee was able to render invaluable service to the congressmen who were considering it, with the result that the bill was passed in a form which is very favorable to paving-brick manufacturers. This committee consists of W. P. Blair, O. N. Townsend, C. C. Blair, J. B. Hammond and Eb. Rodgers.

The Special Committee to Recommend a Course of Study to Colleges stated that very little progress had been made in its work but that indications pointed to considerable activity in the near future along this line. Progress has been slow but this is a much needed work in the industry. This committee consists of W. P. Blair, S. M. Duty, C. C. Barr and Eb. Rodgers.

While the program called for the appointment of new committees following the above reports, none were made at



Workmen Engaged in Laying Brick on the Dry Mixture of Cement and Sand. Template Is Shown in the Foreground Which is Used in Leveling Off the Concrete Base and the Dry Mixture

Everybody Listened When Secretary Blair Shouted the Instructions Covering the Afternoon's Itinerary for Brick Road Inspection in Paris Township and Edgar County on October 6th. The Remains of the Lunch Are to be Seen in the Foreground.

this time, nor was there any unfinished business to be discussed.

Under the head of new business the forthcoming Second Annual Complete Building Show in New York was brought up with the result that a motion was made and passed that this matter be made a subject for special consideration at a near future date. There is little doubt but that the paving-brick manufacturers will have an exhibit at this show, something along the lines of that at Cleveland last February.

BOARD OF DIRECTORS ELECTED

A list of nominees from which there was to be selected a board of twenty-five directors, provided for in Section 2 of Article 4 of the National Paving Brick Manufacturers' Association constitution, was then passed around. From the thirty names presented to the members of the association, the following twenty-five were selected: J. B. Wilcox, Eb. Rodgers, W. N. Alderman, C. C. Barr, C. C. Blair, G. O. French, R. C. Burton, W. P. Blair, J. W. Robb, C. J. Deckman, J. G. Barbour, F. L. Manning, J. L. Murphy, John C. Kline, R. A. Doan, G. E. Carlyle, J. R. Zmunt, C. P. Mayer, H. C. Adams, G. H. Francis, F. W. Lucke, D. R. Potter, J. H. Simpson, E. M. Grant and S. R. Strong.

EXISTING OFFICERS RE-ELECTED

Immediately following the election of the board of directors, the matter of selecting new officers for the ensuing year came up for attention, the result being that all the present officers were re-elected. These are: President, C. C. Blair; vice-president, J. W. Robb; treasurer, C. C. Barr; secretary, W. P. Blair; assistant secretary, H. H. Macdonald.

A meeting of the board of directors and of standing committees was then called to consider certain matters of importance, following which the convention adjourned for lunch.

VISIT LOCAL PAVING-BRICK PLANT

After lunch and upon reference to the program, the brickmakers and their friends, noticing that there was nothing scheduled to occupy the afternoon, began to wonder what they would do to spend the time. They were not kept in suspense very long, however, for the smiling presence of "Jim" Hoskins announced that they were to be his guests. Having secured a number of automobiles, "Jim" piled the "bunch" into them and started the procession out on an inspection trip thru his excellent plant near the city.

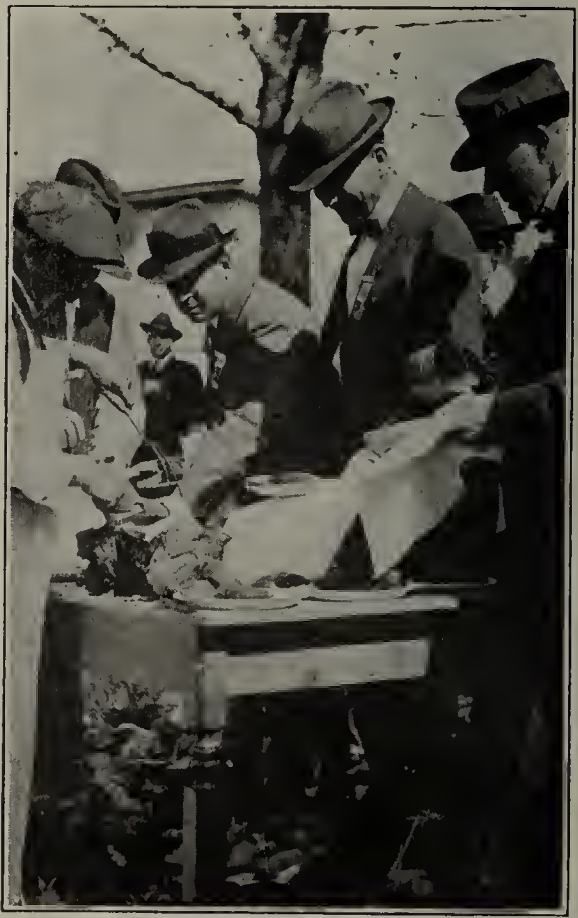
Here the convention took more the form of a meeting of the Institute of Paving Brick Manufacturers, the crowd splitting up into small parties and going over the plant under the direction of the able Mr. Hoskins and Mr. Johnson, who is president of the Terre Haute Vitrified Brick Company, treading carefully so as to avoid the fresh red and black paint. The brickmakers watched a machine "knock out" pavers at the rate of about 75,000 per day. The capacity of this plant was increased one-third last spring and plans are now under way to increase it another third next spring. It will then have a total capacity of 100,000 paving-brick a day.

Considerable interest was manifested in the crushing outfit and the pit, illustrations of both of which are shown in these pages. Owing to the extreme hardness of the shale obtained from this pit, it is necessary to give it a preliminary crushing before allowing it to pass into the dry-pans. Inasmuch as the company has a boiler and engine at the pit for the pumping of water, it was found that it could, without very much additional expense, operate the crusher plant with the same boiler equipment. The cars are loaded with the shale down in the pit, pushed up an incline by a locomotive and then up another incline in the opposite direction to the top of a large trestle where cars are dumped over a bar screen to the crusher below. When the shale comes out at the bottom of the crusher it is again loaded into cars and hauled to the plant by the same locomotive.

Hot, tired and dusty, the visitors returned to the hotel late in the afternoon to rest up from the day's work and prepare for the strenuous twenty-four hours to follow.

DELEGATES SEE OLD BRICK STREETS

At nine o'clock on the morning of Friday, October 6th, the delegates got into the waiting automobiles outside of the Hotel Deming and proceeded south on Sixth street where an inspection was made of a twenty-five year old pavement, an illustration of which is shown in one of the accompanying pictures.



Getting a "Hand-out"

This pavement was laid in 1891 and its excellent condition is a demonstration to the permanency of conscientious brick construction, even under conditions that are not the most recent. South Sixth street is one of the busiest streets in Terre Haute and, at the same time, favored for high-grade residences. It has withstood the test of twenty-five years and presents a present day condition that appeals to the paving connoisseur.

North Seventh street was also exhibited as an example of the latest type of monolithic brick construction, proving that the gain in durability thru this method sacrifices none of the smoothness obtainable under the older method. A picture of this street is also shown herewith.

PARTY BOARDS CARS FOR PARIS

Following the inspection of the Terre Haute pavements, the party was driven to the interurban station where it boarded cars for Paris, Ill., seventeen miles distant. Five cars were required to take the entire party to the adjoining Illinois city where, upon its arrival, it was greeted by the mayor, the Paris brass band, members of the city council, state highway commission, chamber of commerce and many citizens, which made the visitors feel that they were most cordially welcome. Mayor W. H. Hoff, in handing the city's keys to the incoming delegation, paid a high tribute to Edgar county's incomparable brick roads, stating that the city of Paris owed much of its growth and prosperity to these eminently dependable highways.

The Motor Cavalcade Gliding Over the Smooth, Dependable and Durable Paved-with-brick Highways of Edgar County

WATCH BUILDING OF MONOLITHIC ROAD

The visitors then boarded local street cars—the whole traction system having been stopped for their convenience—a journey being made to the water works, near which Contractor Alan J. Parrish was building a section of monolithic brick road, under the general supervision of Engineer W. T. Blackburn. These two men have won deserved note in the paving world for the excellence and economy of the monolithic pavements laid in Edgar county during 1915, an article describing which was published in the April 4, 1916, issue of "Brick and Clay Record" on page 624. While the monolithic idea has been advocated repeatedly thru several decades, the credit for the working out of economic details and of gaining deserved recognition for the merits of this kind of brick pavement undoubtedly belongs to these two men. Naturally, they shared largely in the pride which this day brought to Paris and Edgar county.

The demonstration was not "staged" but was a part of the actual contract for the improvement of this road which is now being done by Mr. Parrish. The visitors saw the method followed in the laying of a ten-foot curbless monolithic pavement on a rural road some two miles north of the business section of Paris, from the shoveling of the cement and aggregate into the mixer to the final grouting of the finished pavement. The visitors saw not merely the demonstration at each step in the paving process, the laying of the concrete beds, the operating of a double template to level the concrete and spread and dry, the mixing of mortar, the rapid laying and grouting of the brick surface, but witnessed a spectacular and startling efficiency which won the confidence of all and the envy of some. Contractor Parrish reported at the end of the day that he had laid eight hundred yards of pavement in spite of the unavoidable delay on account of the visitors, who pried into every detail of the work and fairly over-ran the job. He also reported more than one offer to buy his organization just as it stood.

DEMONSTRATION FOLLOWED BY BARBECUE LUNCH

The paving demonstration was followed by a barbecue lunch in Waterworks Park. Quarters of beef and mutton were roasted over an open-fire and converted into sizable sandwiches for the hungry highway horde. Coffee and dill pickles completed the menu. After a group picture had been taken, the crowd was accommodated in automobiles, loaned by the public-spirited citizens of Paris, and two or three hours devoted to a trip of inspection over the various types of road to be found in the vicinity of Paris.

INSPECTION MADE OF EDGAR COUNTY ROADS

There are sixteen miles of brick pavements around Paris. Of these, Paris township has built ten miles and the state and county six miles. The total of sixteen miles can be divided into two equal parts, eight miles of which is of monolithic construction and eight miles of the sand cushion type. The first step toward the construction of this wonderful system of roads was made in 1912 when Paris township voted a tax of $130,000 to be spent in the improvement of its highways. Since that time the state of Illinois and Edgar county have combined forces in spending $88,000 both in 1915 and in 1916 on roads adjoining Paris. It is estimated that the visitors traveled over about ten miles of the sixteen in automobiles, seeing every type of brick pavement that has been built in the county, varying in width and construction from ten to thirteen feet and from brick laid on one-and-a-half inch sand cushion over a four-inch concrete base to a three-inch brick laid after the monolithic style of construction.

HOLD BANQUET FRIDAY EVENING

After completing the inspection of the Edgar county roads, the entire party boarded interurban cars, returning to Terre Haute where it sat down to a banquet in the Hotel Deming.

When the paving-brick manufacturers, their guests, highway engineers, good roads journalists and representatives of clayworking publications, of which "Brick and Clay Record" had four, had satisfied the inner man, secretary Will P. Blair introduced the toastmaster of the evening, Paul Bogart, who in turn introduced Joe L. Long, editor of the "Road-

(*Continued on page* 733.)

AMERICA'S FIRST CITY *Gets* N. B. M. A. CONVENTION

March 4th to 11th Selected as Dates for Nineteen-seventeen Nation-wide Gathering of Brickmakers and Others Interested in the Manufacture of Burned Clay Products

Hotel McAlpin, Broadway and Thirty-fourth Street, Where Convention Headquarters and Exhibit Rooms Will Be Maintained

NEW YORK CITY—within a ten-mile radius of which nearly one-tenth of America's population is reputed to live, the market and center of East-coast clay plants—is to be the scene of a tremendous gathering of manufacturers and others interested in burned clay products, particularly common building brick. The convention will be held in the McAlpin Hotel beginning March 4th and ending the 11th. This is the first time that the foremost city in America has been chosen the meeting place for the brickmakers. In years gone by there have been some conventions held on the Atlantic coast, Philadelphia, Washington and Old Point Comfort being the favorite points.

An interesting fact in connection with this coming gathering is that the Second Annual Complete Building Show will be held at about the same time in New York City. Owing to the fact that this feature proved to be a big drawing card for the N. B. M. A. convention the early part of this year at Cleveland, there is little doubt that it will have much to do in bringing a big crowd of clayworkers to the Great White Way.

In addition to being eminently the biggest market for burned clay materials in America, New York is the center of a vast clayworking territory. At the mouth of the Hudson, it stands as a gate-way to the Hudson river district which is second only to Cook county, Ill., in the production of common building brick. For many years it has held first place as a producer of this commodity but in recent times has had to give way to the metropolis of the Middle West. For those who are interested in the romantic and historic side of brickmaking, a trip up the Hudson will furnish an experience long to be remembered.

On the other hand, a short railroad journey occupying not more than two hours in an opposite or southern direction will bring the visitor into an old and rich territory where pottery, fire-brick, terra cotta and in fact every type of clay plant holds forth. The Raritan river section of New Jersey produces a tremendous amount of clay ware in a year, manufacturing almost every known variety. The famous "Raindrop" brick, made by Sayre and Fisher at Sayreville, has its home on the Raritan river, these yards being plainly visible from Keasbeys.

Judging from the many things to attract members of the clayworking fraternity to New York during the early part of March, immediately following the inauguration of America's next president. it looks very much as tho the 1917 meeting of the N. B. M. A. will be a time and a great opportunity for making and renewing old acquaintances, and for exchanging the experiences of a year of prosperity.

* * *

New Milwaukee Pottery Completes Plant

The Milwaukee Pottery Company of West Allis, Wis., recently organized by Louis Weis and H. F. Schuette, both of Milwaukee, has purchased a parcel of ground and has just completed a large plant equipped with four kilns and modern machinery for the manufacture of glazed and fancy pottery.

ELIMINATE LAMINATION *or* ELIMINATION! WHICH?

The Paving-brick Maker Has No Choice in This Matter; He Must Take the First Mentioned Course, or the Second Will Surely Follow

THE WORDS "Eliminate" and "Elimination" are here used advisedly. They apply to the result of the rattler tests and not to the physical presence of lamination in the "green" ware. One manufacturer may not be able to entirely eliminate this trouble because of the nature of his clay or shale, but by taking heroic measures, so minimize it that it is a negligible factor in the rattler.

"LAMINATION," says R. T. Stull, formerly director of the ceramic department, University of Illinois, and who has done considerable research work on this important subject, "will always be with us as long as we pass clay thru an auger machine and a die."

This problem is sort of a common meeting ground for clay plant managers, superintendents and engineers, many of whom have experienced its discouraging and vexatious presence. On this subject they can come together and discuss their grievances and woes, knowing that sympathy will be forthcoming.

The fact that lamination has been such an everlasting scourge to the industry, particularly paving-brick manufacturers, is responsible for the many and varied experiences of men above mentioned. Knowing that a large number of clay products manufacturers have struggled and will in the future strive for the solution of this difficulty, "Brick and Clay Record" has made an effort to get the results of the work that has been done by those who have solved the problem, down in such tangible form that it will be of benefit to those that are still under the shadow of its curse.

STAR CLAYWORKERS CONTRIBUTE IDEAS

We have written to and talked with a number of leading men, particularly in the paving-brick industry, and have secured some very excellent ideas upon this subject, which follow. Some of the most able plant managers, superintendents and ceramic engineers have contributed to this symposium.

We are sorry to say that some have not found it advisable to give us the results of their experiences, even tho our pledge was given that in no case would the name of the contributor be mentioned, nor the location of his plant be given. In a few isolated cases, we believe the objections to contributing to this symposium are thoroly sound and logical. We feel, however, for the most part where participation was refused, that the old moss-grown theory of the Middle Ages has been allowed to prevail, namely the fear that some "secret" formula or idea might be given out which in the majority of cases, is not secret at all. We are sorry, as we have said, that some still hold to this old line of thought but a sufficient number have "come thru" to make the following symposium of great value.

ADVOCATES MIXING CLAYS

"The subject of lamination," says a well-known plant executive, "is indeed a vital one to manufacturers of certain classes of clay ware, especially the makers of paving-brick. It is also being given considerable thought by the Technical Investigating Committee of the National Brick Manufacturers' Association in its study of building brick for the purpose of classification.

"Lamination is the bane of the paving-brick man. The rattler will surely discover its presence and, very frequently, eliminate a particular make of block from competition. It, therefore, behooves the paving-brick manufacturer to eliminate his lamination if he would not himself be eliminated.

LAMINATION INHERENT WITH AUGER MACHINE

"In speaking of this problem, we must go back to its source if we are to effect such a thing as even a partial cure. Lamination occurs most frequently in brick or other clay wares made by the stiff-mud process in some form of auger machine. We believe we are safe in saying that lamination is inherent in the auger and die machine and, therefore, will consider the subject from the standpoint of users of such machines only.

"Lamination of a column of clay is caused in the auger brick machine, in the first place, by the action of the auger and then of the die in forming the column. In considering the action of the auger we find two streams of clay on the double wing type of machine being formed and these two

BECAUSE You Are Having Trouble With Lamination, It Does Not Necessarily Follow That You Must Needs Be Permanently Eliminated from the Market. There May Be a Way of Solving Your Problem That You Have Never Tried.

The Above Symposium Was Made Possible by the Broadmindedness of a Number of the Most Able Paving-brick Plant Superintendents, Managers and Engineers. Read What They Have to Say! It May Be Worth a Fortune to You!

streams are slipped over a smooth surface, being forced forward in the former and the die. It is under these conditions that the two streams of clay are expected to emerge perfectly co-mingled and free from lamination.

"However, these clay streams *do not* co-mingle but simply imbed one in the other, which action depends upon the clay being used. If it is sufficiently plastic we have an auger lamination. If not, we have no lamination from this cause.

"After leaving the auger, the clay is forced to travel forward with the sides of the column, dragging along the metal surface of the former and die. The friction here encountered causes a differential flow of the clay particles. The center of the column travels faster than the sides and corners and we have a differential lamination.

"These two forms of lamination—auger and differential—have been traced and recognized as the most frequently met. We are, however, not yet ready to proceed in the finding of the remedy, for we must recognize another factor in our fight to eliminate this annoying difficulty.

CLAYS VARY IN DEGREE OF PLASTICITY

"Clays or shales have, as we all know, varying degrees of plasticity. We have all seen the very stiff and tough clays which, when put thru an auger machine, come out of the die wrapped up like a jelly roll. Most of us have also seen the "short," sandy shales which, as they emerge from the die, have scarcely enough toughness to hold the column together and break at the die or even in the cutting table.

"Allow me to ask you to examine both types. In one auger and differential laminations are so pronounced that we could use such a brick for a model in demonstrating the most extreme cases, while in the other, lamination is almost, if not entirely, absent. With these two examples before us, we must draw some conclusion. We must feel that, even tho lamination is an inherent characteristic of the auger machine, yet the character of the material being formed has much to do with it.

"Some men have claimed, and we ourselves have been among them, that coarse grinding of shales would tend to reduce lamination. It will, but within limits. If the shale is particularly plastic, the presence of coarse granular particles in the aggregate will have a tendency to keep down the forming of laminations. The finely ground plastic shale will always show some lamination in the column. On the other hand, a shale that is not considered particularly plastic but is likely to be called "short" or sandy, may be ground fine (one-sixteenth inch opening piano wire screen) and will show very little lamination on the same auger.

CAREFUL MIXTURE SOLVES THE PROBLEM

"Is it not then reasonable to assume that a careful mixture of these two should give us our best average results and, at the same time, permit a fine grinding from which we benefit in many ways? It *is* reasonable and entirely practical, and the mixture will make a high-grade paving-brick.

"All shale banks vary from top to bottom or from end to end, and we find some portions more plastic than others. It is from this point then that we, who have no better machine than the auger, must start. It is here that we must eliminate our lamination. So far as the mechanical construction of the brick machine is concerned, the machinery manufacturers have worked out their auger and dies to a point where they can give us the auger or die of the proper design to meet our requirements. A number of very interesting papers have been read before the American Ceramic Society and are on file in its Transactions, covering the subject of auger and die design. R. T. Stull's investigations on the design of dies is most complete and the writer feels that they can be relied upon if applied to our material, to do their share in the eliminating of lamination.

PLASTICITY IS GOVERNING FACTOR

"Our die lubrication, die, former and auger must all be worked to best fit our particular needs. One must study these things as applied to his own particular case but the writer feels safe in saying that the plasticity of the shale is the governing factor in determining whether we will or will not have lamination, providing we already have properly designed machinery. In other words, we must give more attention to the selection, mixing and grinding of our shale, so that a material may be sent to the auger machine which will have the least tendency to laminate when formed into a column. The writer, taking the attitude that the auger brick machine by its very mechanical design must form lamination, the amount varying with the plasticity of the clay, contends that the various forms of auger, dies, methods of lubrication, and so forth, serve only to reduce, not eliminate them.

"Therefore, that material which produces the least amount of lamination is the material to use when possible. Furthermore, by the use of proper storage, almost anyone can build up his clay so that it will best suit required conditions.

"We believe that our suggested remedy will apply to all brick made on an auger machine and that the adoption of it in some form to meet local conditions, will prove to be of great benefit to the manufacturer of paving-brick and ultimately, when engineers specify brick according to a definitely worked out classification, to manufacturers of all types of brick."

ADDS SAND IN THE PUG

"In our clay," says another writer—a ceramic engineer with a nation-wide reputation—"there are two distinct kinds of lamination that still exist, even tho we have reduced them to an almost negligible factor.

"Our shale is extremely plastic. In fact, it is slick and slippery to the feel and, of course, when we originally ran the mill with the mud stiff, the auger and differential laminations were very pronounced.

"On a rattler test we found it possible to get only twenty per cent. with the top ten courses from the kiln, the balance running as high as twenty-eight or thirty per cent., and sometimes higher.

"Some years ago it occurred to the writer that if we ground our clay finely it would aid materially in getting the split portions to knit together again and so we tried this plan on approximately twenty tons of material. You know the result. The lamination was *awful*, but we were learning our little lesson. We, therefore, put the brick thru the drier and kiln, finally securing a forty per cent. rattler test.

THE MISTAKE WAS NOT MADE IN VAIN

"As a result of this experience, we were satisfied that 'one end of our string' was positively wrong and we gradually worked back the other way until we were grinding coarse, and with beneficial results on a good many points. Under this system the output of the pans was increased, our drying loss reduced and the total lamination decreased, but the brick were weak in the green and dried state and the differential spall lamination was equal or worse than formerly.

"It was, of course, perfectly evident that the coarse particles facilitated the bonding of the clay as it passed thru the die but other difficulties developed that were objectionable.

"The theory seemed so good that all of us on the plant from the engineer to the burner kept 'fussing' over it, with the result that, within three weeks, we struck the one big idea that is in successful operation today.

"We added to the rear end of our pugmill about three per cent. of sand. This practice has been followed for a good many years and has worked wonders for us. We do not feel that it wholly solved our lamination difficulties, for we also reduced our die taper, changed the type of our auger, and so forth, but the first mentioned is, without doubt, the prime method for knitting or bonding the laminated structure of our plastic shale.

"It may also be added that the burners were able to reach and maintain a higher temperature as a result of following this last mentioned plan, without getting a glassy structure. On the other hand, they produced a stony textured, tough brick."

MAKES CHANGES IN AUGER AND DIE

"Lamination, as encountered in the manufacture of brick and paving-block, is caused, in a major degree, by the inequality of flow in the different sections of the clay column. In other words, the difference in the rate of flow of any of the component parts of the column, gives rise to the formation of lines of cleavage in the clay. These lines of cleavage may prove very difficult to destroy as the column moves forward.

"They may be formed near the end of the auger, near the die or in the die itself.

"In the case of their formation at or near the end of the propellor, the cause can sometimes be removed by the use of an auger or propellor of a different type or one of a different taper. A lengthening of the distance between the end of the auger and the back of the die also has been known to help greatly in correcting the lamination evil.

"In the case of the formation of these lines of cleavage near or within the die, better results have often been obtained by giving attention to the form of the die, also to the shape of the extension directly in back of the die.

SAYS ADDITION OF BURNED CLAY OR GROG HELPS

"In nearly all the cases where a clay laminates badly, the addition of burned clay or grog has been found to be of marked value. This, if finely ground, can be incorporated into nearly all classes of brick without harmful results.

"It is usually also true that the softer the clay is pugged, the less lamination is encountered, all other conditions remaining the same.

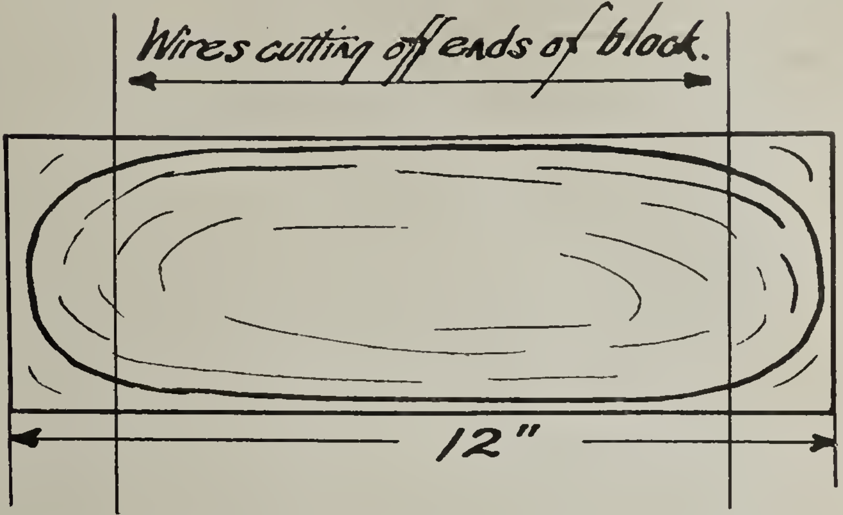
"As no two clays work alike, a treatment beneficial to one may not prove to be the same to another. The same general principle may apply in all cases, yet we should work out the finer points by "cut and try" methods, coupled with good head work. Persistent, continued effort in experimentation along the lines named will bring the desired results if the clay in question runs fairly uniform. If the clay is not uniform, then the pit and mixing operations should be studied first, before wasting good money on expensive machine alterations."

CUTS OFF LAMINATED CORNERS

In presenting his views as to how the problem can be solved, a reader says:

"In our plant we theorized in this matter of lamination. We said to ourselves, 'If we cannot prevent this difficulty in the column, it may be possible to slice off the heavily laminated corners and ends of an extra size bar of clay, leaving the center portion intact and almost unlaminated.'

"To do this, we had a die made that was twelve-inches wide; thus a side-cut block of the usual size, but twelve inches long in the green state, could be made. To cut this down to normal size we stretched two very fine steel piano wires across the mouth of the die, one-and-a-quarter inches in from each side, as is shown in the accompanying illustration. This arrangement reduced the bar to nine-and-a-half inches wide, the proper length of our brick, before it is dried and burned. This method also cut off the four corners where the differential lamination was so heavy and the block was then cut and repressed, and a big reduction made in our rattler loss. In fact, we have no difficulty now in meeting severe specifications."



Sketch Showing How Wires May be Stretched Across the Mouth of the Die, Cutting Off the Laminated Corners and Leaving the Center Portion of the Brick Intact and Almost Unlaminated

KEEPS AUGER KNIVES COVERED

"Lamination is a subject that has given every brickmaker something to think of," according to the general superintendent of a prominent clayworking concern. "What would overcome or minimize it with one clay might aggravate it with another. However, in our particular case we get the best results by keeping the die close to the auger and setting the knives of the pugmill to thoroughly pug the clay, running the mill at such a speed that it will keep the auger in the brick machine covered at all times.

WEATHERS OFF-BEARING WASTE

Still, another ceramic engineer says:

"There are almost as many causes and probable cures for lamination as there are cases of it, and it is very possible that the cause and the cure vary at least slightly in every case.

"There are many things that we did to our clay, pugmill and auger that produced, each in its turn, a lessened amount of lamination, but there was only one big idea that produced for us a really remarkable reduction.

"Formerly, we had our waste clay elevator feed the waste from the end of the off-bearing belt directly into the pugmill where it was immediately repugged and returned to the auger.

"This waste was in a compressed mass. *It was covered with oil,* and oil on a shiny surface of any piece of clay prevented that particular piece from bonding in the auger chamber or in the die.

"Even if the pieces were all chopped up in the pugmill and auger, oil would be present in sufficient quantities so that the auger wings would place a permanent shine on the clay, in its contact with them, and the tendency would be, of course, for this series of slick surfaces to come thru the die unbounded.

"We remedied the trouble by simply running the waste clay conveyor back to the storage shed, and allowing the waste to thoroly dry before regrinding it in the pans.

SUMMARY

From the foregoing opinions it will be seen that lamination is partially or wholly eliminated or reduced by a great many different methods. As a paving-brick disease, it owes its origin and its cure to a variety of causes and effects, and in practically every case the local conditions govern both the severity of the case and the methods of applying a cure.

Causes of lamination on one plant may be non-existant on another that is nevertheless troubled just as severely with lamination. The result may be the same in both cases, altho the cause or causes are totally different.

It must be noted that in the six answers given above, no two are alike in whole. Altho some of the men agree upon different points, yet each has a distinct theory, cause or cure of his own. We believe that if six more opinions had been written, it is more than possible six new ideas, different from those given, would have been presented.

The subject under discussion has not been exhausted in the above symposium. There are other causes—other results—and other more or less distinct cures, some perhaps just as startling and as valuable as those given. There is one interesting point about these six answers. Is it not remarkable that so much information may ye given and still little said concerning single or double wing augers, relative speed of auger and pug, shape of barrel, length of the die itself, lubrication of the die, and so forth.

In all of the list of troubles—each of which is classified in turn as "nothing more important to the paving-brick man"—we really do believe that the successful restraint of lamination is the hardest to secure and keep, of all of his troubles—and they are many.

The paving-brick manufacturer is not striving for color nor does he care a very great deal about the niceties of form and shape, but he does want and must have a tough, upstanding, double-fisted block that consistently hangs on to eighty per cent. of its anatomy when it goes thru the rattler. *It must be a "tough mug."*

There are many contributing causes to the "second" pile, but none are so invariably present as lamination, and few are as poisonous.

There is a reason for everything and, altho the reason for your laminated block may not be apparent, even tho it has escaped you for years, we are willing to wager that here above is given the cause or the cure of your own troubles or from the ideas given, you may be able to draw the inspiration that will enable you to reason straight into a solution of your own difficulties that are produced by local conditions—and must be cured locally.

Certainly, there is some clue, some method used, that will help *you.*

FOUR MILLION DOLLAR BRICK CONCERN FORMED

A merger of four large brick concerns at Cleveland, Ohio, has brought forth the Barkwill-Farr Company, a $4,000,000 corporation. The new combination went into effect on October 1st, and includes the Farr Brick Company, the Barkwill Brick Company, the American Building Brick Company and the Cuyahoga Brick and Shale Company.

Officers of the new organization are: President, E. S. Barkwill; vice-president, Robert Dawson; treasurer, Lawrence Koblitz; secretary, John Jackson; general manager, H. J. Farr; chairman of the board of directors, E. W. Farr; salesmanager, Robert C. Mitchell; auditor, H. W. Conway; office manager, E. J. McGettigan. The board of directors includes the foregoing officers and executives, as well as C. C. Barkwill, E. W. Carder, Mrs. Ida Farr Williams and Herbert J. Farr.

The negotiations thru which the merger was effected have been pending for a period of months, but reached a climax at a get-together dinner at Hotel Colonial, Cleveland.

A most significant feature of the combination will be an effort to cut down the cost of common-brick thru the adoption of efficiency methods in delivery and a reduction of overhead expenses. According to Mr. Mitchell, there is $185,000 worth of delivery equipment involved in the conduct of the business under its new arrangement and this, when properly applied, will make for the utmost efficiency and eliminate overlapping deliveries.

There will be nine plants in operation under the merger arrangement, and it is said these plants will be able to turn out 1,000,000 brick a day.

The companies in the merger have contributed $250,000 each towards $1,000,000 of the capital stock, which will be offered to the public thru the Guardian Savings and Trust Company. According to Mr. Mitchell, this amount is going fast and there is little left. The common stock has a par value of $50, which is fully paid and non-assessable. The new organization starts free from indebtedness and with more than $200,000 working capital.

The company will occupy the entire second floor front of the Leader-News building when alterations are completed.

* * *

Cleveland Dealers Combine in New Concern

An important change in the Cleveland (Ohio) brick industry during the past month, has been the amalgamation of the Lake Erie Builders Supply Company and the Cleveland Brick Sales Company. The latter organization has been taken over by the Lake Erie interests, and henceforth both concerns will be operated as one institution, according to J. P. Jerka, general manager of the Lake Erie Builders Supply Company.

The Cleveland Brick Sales Company, under the management of H. F. Kemper, has been specializing in face-brick, handling the Beaver Clay Manufacturing Company's, the Belden Brick Company's and the Claycraft Company's products. These it will continue to handle.

Mr. Kemper will act as manager of the new combine under Frank Aulenbach, salesmanager of the Lake Erie Builders Supply Company.

The Cleveland Brick Sales Company will retain its present offices in the Scofield building, where the Lake Erie Builders Supply Company, heretofore located at East 55th street near St. Clair avenue, will move its offices.

* * *

L. C. Herrick, formerly surveyor of Huron county, Ohio, has severed his connection with the county to accept the position of division engineer for the Ohio Paving Brick Manufacturers' Association.

The French Lick Springs Hotel—the Home of Pluto Water—Whither the Face-brick Manufacturers and Dealers Have Been Attracted by Past Courtesies and Painstaking Attention

FACE-BRICK MAKERS PLAN BUSINESS CONVENTION

French Lick, Ind., Chosen as Meeting Place at Large Cleveland (Ohio) Joint Gathering Where Cost and Sales Committees' Reports Are Heard

MEETING IN JOINT SESSION at Cleveland, Ohio, on October 6th, the executive committees of the American Face Brick Association and the Face Brick Dealers' Association decided that the next annual meetings of these two organizations will be held at the French Lick Springs Hotel, French Lick, Ind., on December 6th, 7th and 8th.

It will be remembered that the face-brick manufacturers and dealers held their conventions in 1913 and 1914 at this same point, the painstaking attention and unusual courtesy of the hotel management again prompting them to meet at this famous hostelry.

"BUSINESS FIRST" TO BE SLOGAN OF MEETING

In the tentative arrangements for this big gathering there are two features which stand out as being eminently deserving of great commendation. In the first place, the face-brick manufacturers and dealers desire that the coming conference shall be on a strictly business basis with the entertainment feature in the background, which is one of the two reasons why the French Lick Springs Hotel was chosen as the meeting place; the second reason being a recognition of the many courtesies which had been extended by the hotel company at the two other meetings which were held at this point. The executive committees felt that there were few other places available in the central location necessary, that would promise anything like the same hospitality at the very reasonable rates. The reading of papers will be practically, if not entirely eliminated. There will be no "annual banquet." This is a radical change from the procedure followed in past years.

CONVENTION WILL BE OPEN TO NON-MEMBERS

The second feature of the gathering that is worthy of more than usual mention is that, while in the past the meetings have been open only to the membership of the association, this time all face-brick manufacturers, whether members or not, will be welcome at all scheduled meetings, with the exception of the executive sessions.

All frills will be omitted from this meeting so that the fullest opportunity will be afforded to get the maximum business benefit from it. There will probably be round table conferences held in separate rooms between producers interested in the various natural districts. Subjects for discussion will be furnished and will be led by a competent chairman. A very successful meeting, therefore, is being anticipated on every hand and those who are in charge of the arrangements hope that a great deal of good will be accomplished.

Furthermore, with the meetings open to non-members, it is believed that it will not be very difficult to have at least double the number of delegates on hand at the French Lick gathering this year than attended the meetings of the past.

MAJORITY OF MEMBERSHIP PRESENT AT CLEVELAND

Referring to the meeting at Cleveland on October 6th, at which it was decided to hold the convention at French Lick, this was called primarily for the purpose of hearing two very important and comprehensive reports which had been prepared by the Sales and Cost Committees. Exactly seventy per cent. of the membership of the American Face Brick Association was present at this meeting, which was very gratifying to the officials, as the members are widely scattered, seventeen per cent. being located at points west of the Missouri river. From this it will be noted that there was almost a perfect attendance of members situated east of the Mississippi.

COST ACCOUNTING REPORT ENDORSED

A base plan for cost finding, which had been prepared by a well known accountant under the guidance of the cost committee, was endorsed and instructions were issued to the effect that a competent man be employed to visit the headquarters of every member as quickly as possible in order to harmonize the systems at present in use with the fundamental divisions endorsed in the base plan. The successful handling of the cost program is expected to go hand in hand with the plan for an Open Price Policy, details of which were discussed at length and unanimously agreed to by all present.

OPEN PRICE IN NINETEEN-SEVENTEEN

The sales committee presented a detail plan for the Open Price Policy which comprehends a legal distribution of information concerning prices to the wholesale trade. An amendment to the by-laws of the association was offered by the Sales Committee, but several parts of this were changed upon advice of the Executive Committee. It might be mentioned that the proposed amendment, revised according to the ideas of the Executive Committee with a few additional minor changes by the membership, was unanimously endorsed by those present. It, therefore, appears that the American Face Brick Association will surely try out the Open Price Policy next year. If this is the case, it looks very much as tho manufacturers have all to gain and little or nothing to lose. The plan to be pursued comprehends an interchange of price lists to dealers, all deviations from price lists to be filed with the secretary-treasurer. In all probability this plan will be put into operation January 1st, 1917. However, the successful operation of the Open Price Policy depends largely upon frequent meetings of all manufacturers in a given producing district; arrangements, therefore, are being worked out for districting producing sections with the expectation of holding monthly meetings.

IMPORTANT POINTS CONTAINED IN SALES REPORT

The report of the Sales Committee, which was fully presented to the membership on October 6th by the chairman of that committee, is much too long to reproduce here. In general it might be said, however, that the general consensus of opinion of the committee was that the plan outlined by J. Parker B. Fiske in his paper entitled "Price Cutting," which was read before a meeting of the executive committee last spring, is most desirable as an ultimate solution of the present sales difficulties under which the face-brick industry is laboring. The committee stated that it believed that the only solution of the difficulties was the absolute control by each manufacturer of the retail prices of his products but that, in bringing about such control, very many legal obstacles and some objections concerning the reorganization of present sales methods were to be overcome.

The committee drafted a simple program embodying the more important features of the Open Price system for submission to the attorneys of the association in order to first ascertain the legality of same. The report had considerable to say regarding the opinions of various attorneys on the points which it was intended to cover.

The amendment to the by-laws of the association which was agreed to at the October 6th meeting and which will play a large part in the successful working of the Open Price Policy, will be furnished to the membership at least two weeks prior to the coming annual meeting in order that same may be voted upon and become a part of the existing by-laws.

ACTION TAKEN REGARDING STANDARDIZATION

Another matter of interest which came up for attention at the October 6th meeting was the old question of standardization which developed in the discussion of the method to be employed in filing prices. Prices for "seconds" and "specials" received a great deal of attention, the result being that it was agreed that all "specials" and "seconds" should be given a shade number just the same as "firsts" and be included in the price lists on file, but that the former should be called neither "seconds" nor "specials." This is certainly a step in the right direction and, if the action taken does not follow out closely the ideas advanced in the paper, "'Standardizing' Face Brick," by Frederic W. Donahoe, which appeared in the October 3rd issue of "Brick and Clay Record," it is very close.

RARITAN RIVER PLANTS ARRANGE QUICK WATER DELIVERIES

Members of the Monmouth Manufacturers' Association in session at Matawan, N. J., on October 4th, transacted considerable important business The membership committee reported progress while the traffic committee's report was laid over until the next meeting.

However, the special committee appointed to confer with the New York and New Jersey Steamship Company submitted a favorable report. It stated that satisfactory arrangements were being made for the transfer of goods to connecting boat lines in New York. By this means, shipments made from Keyport, N. J., would be transfered on the following day to all sound, river and coastwise boats, which would result in two or three-day deliveries to Boston, Providence, Fall River, Hartford, New Haven, Bridgeport and Albany, and other important points. This, it was pointed out, will be of great benefit to the clay products manufacturers in the Raritan river section of New Jersey.

The steamboat company above mentioned will file with the association a schedule of thru rates to all points for which it can make advantageous connections.

The next meeting of the association will be held on November 1st at Keyport, N. J.

⁂

The quantity of ware that is being turned out by Raritan river (N. J.) clay plants again shows an increase, according to reports from several of the superintendents and managers in that district. The National Fire Proofing Company's plants are all busy, as are also the numerous terra cotta factories in this section.

TERRA COTTA in ANCIENT BABYLONIA

A Vivid Portrayal of the Corner-stone-laying Ceremonies of the Great Temple of Ishtar Where Terra Cotta Was First Used on a Large Scale

By Edward Lee Harrison

THE FOUNDATIONS of the great temple of Ishtar are nearly finished. For almost three years the great king Sargon, conquerer and builder, has spared neither men nor gold in his haste to lay the cornerstone.

The day of days has dawned. From far and near the multitude flocks to the ceremonies. The newly built city of Babylon is in gala attire for the occasion. Streamers of many colored fabrics are displayed in all the streets, and rich and poor alike are arrayed in their holiday best.

Breathlessly they see the great king approach, his chariot of state surrounded by priests and nobles, his stern countenance for the time reflecting calm and even joy. The solemn rites are continued, the bull is slain, the libations poured, the invocations spoken. The stones—there are four in number, one for each point of the compass — are brought forth; and the inscribed vases and statuettes are placed inside, sealed and set by Sargon's own hand.

Cheering, the crowds depart, but we will follow the king for he has gone to his palace and entered the hall of judgment, which means there is important business afoot.

¶ Sargon, Who Built the Temple of Ishtar, Was an Early Babylonian King and Famous Ruler of Assyria, Reigning at About 3800 B. C.

¶ He was the First Historical King in the Old Babylonian Period and His Name Was, Until a Century Ago, the High Mark of Antiquity.

¶ An Eighth Century Tablet, Claimed to Be a Copy of An Earlier One, Tells His Life Story to the Effect That He Was Born of Poor Parents, That His Mother Put Him in an Ark of Reeds and Bitumen and Committed Him to the River, Which Brought Him to One Akkil, an Irrigator, Who Reared Him as a Gardener, and That Ishtar, the Great Goddess, Made Him King.

¶ Nippur, an Ancient Babylonian City, Owed to Sargon Its Great Walls, Eighteen Feet Wide, Sunk Fifteen Feet for Security and Built of Brick That Bear His Name.

THE SCENE IN THE JUDGMENT HALL

Alone in stern grandeur, high upon his judgment throne, we behold the great ruler whose keen mind and unfaltering will have lifted him from a nameless foundling to the mightiest throne of his time. Austere, despotic, the conquerer of nations, the builder of cities, he yet has time to give to the tradesman and the artisan, the inventor and the thinker.

A Babylonian architect, clad in the yellow robe of his profession, steps forward and offers a roll of parchment. With a wave of his hand Sargon has the drawings unrolled and planted against the wall. Two elaborate designs for the great temple are revealed. One of them shows strong traces of its Egyptian origin and the king's brow is clouded as he studies it. The other is plainly native work, and it is whispered around the room that Sargon himself had much to do with the design for the beautiful temple.

After studying the drawings for some time in silence, the king turns to a squat, coarse featured but intelligent looking man, clad in brown costume, and inquires:

"Rasi-Haddon, what of the experiments you were to make?"

The answer is fearless and prompt.

THE PRODUCT OF AN ANCIENT TERRA COTTA WORKER

"They were successful, O mighty ruler." And motioning to two slaves, he causes to be laid at Sargon's feet two pieces of beautifully designed and very fairly glazed terra cotta. It is a different product from the commonly used baked brick of the country, being glazed to resist the weather and afford color. It does not resemble the glazed tiles of the better class of buildings, because it is in larger and heavier blocks and has a wide, firm bed for setting. It is something new—an evolution.

The king gazes with knitted brows at the work and it is again some time before he lifts his head. When he does so it is with a nod to a tall, imposing figure of a man dressed in the height of Egyptian fashion, who at once advances the foot of the throne.

AN ADVOCATE OF STONE SPEAKS

"Ruler of nations, before whose face all living creatures flee away, permit me but a few words." His keen glance closely watched the face of the king and his voice was firm and assured.

"Your august majesty has been mislead in this matter. The product you have under consideration will not stand the test of time. Your majesty is familiar with the work of the stone mason in Egypt and you have beheld with your own eyes the monuments and temples which have endured since the beginnings of time.

"Will you then substitute this frail and brittle material which a few years will swallow up for the living rock which my workmen will carve from the mountains of the north, float down the river in barges and set in the great temple as a perpetual monument to the grandeur of your majesty's name?" The tall Egyptian paused, his eyes snapping and, making a deep obeisance, retired to his place.

During the latter part of his speech Sargon's brow, which has been somewhat clouded, gradually clears and it is evident to those who closely watch his countenance, that he has reached some conclusion in the matter under consideration.

The idea of using terra cotta in works of magnitude is not entirely new, having been agitated at various times. But up to this time no builder has had the courage to branch boldly out and use it on a large scale. Sargon's fertile brain carefully studied the problem and, in addition to possessing a strong distaste for all things Egyptian he had a firmly implanted idea that the clay soil of Babylonia, devoid as it was of building stone, had nevertheless within itself material for the construction of buildings to house its inhabitants and perpetuate their names.

Furthermore, the difference in favor of the home product amounts to a round sum and Sargon's scheming brain has many expensive projects in view. With a wave of his hand he causes the stone design to be taken down from the wall and brought to him where he calmly tears it across and casts it upon the tiled floor in front of his throne. The interview is ended.

BEST BY TIME'S TEST

Fifty centuries have since cast their effacing shadows over his work but a portion of the great temple of Ishtar, built almost entirely of native terra cotta, endures to this day, a remarkable monument to the enterprise and sagacity of its builder.

The Babylonians had many uses for this flexible product besides the construction of palace and temple walls. Most of the tombs of the rich were built of terra cotta and contain coffins and urns made in sections, the joints being secured with bitumen. Fragments of a terra cotta chariot body have been found, as well as numbers of statues and vases of large size.

RELIGIOUS SUPERSTITION HINDERED MANUFACTURER

The terra cotta manufacturer of five thousand years ago labored under one difficulty which we do not encounter in our day. All the blocks which were to enter the walls of public buildings were sacred and could only be made during the feast of the god of foundations—Sivan—during the month which bore his name. The start of the work was celebrated by ceremonies, sometimes conducted by the king himself.

The terra cotta was molded from purified clay, mixed with chopped straw, burned in a fierce fire of reeds and oil, while the glaze was applied afterward and separately fired. After completion, all blocks were stamped with the name and titles of the monarch during whose reign they were manufactured. The Babylonian system of numbering terra cotta for identification at the building was very similar to the one we use, the numbers being punched into the clay before it was fired.

So strong was the influence which the burned clay product exercised upon the builders of the time that we find the later builders in Assyria still freely using the material, altho there was plenty of stone in their country. Generally they made use of the stone for foundations, but the

"With a Wave of His Hand He Causes the Stone Design to Be Taken Down from the Wall and Brought to Him Where He Calmly Tears It Across and Casts It Upon the Tiled Floor in Front of His Throne. The Interview Is Ended."

superstructures were, in many of their most important buildings, of terra cotta.

A GLIMPSE INTO ANCIENT BUILDING PRACTICE

Payment for all building materials was generally by measure, so much for a given unit square. The *sar* was the usual unit and represented the multiple of the standard of measure, the finger breadth. The law generally set the price to be charged, even in private dealings, but it is hard to believe this was never exceeded.

The Babylonian building code was very severe, however, this probably being due to the very fragile nature of many of the materials employed—numbers of the cheaper buildings being constructed of sun-dried brick and rushes—and also possibly to the influx of foreign competition. If a man was detected in a fraud he was warned thrice and, if he still persisted in the deception, he was banished. If his work was unstable he was responsible for all resultant damage, to the whole of his fortune, and even to his own life, if a citizen was killed.

In the use of polychromatic terra cotta the Babylonians excelled. Whole walls were panelled in this medium with histories depicted by skilled artists. Some of the greatest masters of the brush and pigment were employed in the erection of public buildings and their work perpetuated in the glazed medium. We find an architect in the reign of Sennacherib intrusted with a commission to erect a tower "whose height should be the greatest in the city" and the sides of which should depict the campaign of the king against the Elamites. Upon the completion of the work he was decorated and the title given him carried with it the degree "He who is master of clay," evidently implying proficiency in the use of terra cotta.

A PROTOTYPE OF PRESENT-DAY CONTRACTORS

Regarding defective work, we are not under the necessity of speculating whether the Babylonians did or did not encounter it. We find a suit brought during the time of Khammuraby by a wine merchant of Babylon, named Iddini, against one Habasle, the contractor for his new palace. Iddini recites in his petition that "the walls do not align, the glaze is defective and the work not acceptable." The contractor does not attempt to defend the work *but, promptly throws the blame upon the terra cotta manufacturer.*

The case is heard before the judge Nabousakin and his final judgment is preserved to us. It states—

"That the wine merchant Iddini has contracted for a good house and is to receive a good house. That the builder, Habasle, is at fault in that he set the defective material in place without protest. Therefore, the maker, Binshounedir, shall without delay furnish to Habasle new and good burned work, making no charge for the same. The cost of the removal of the defective work shall be met by Habasle the builder. The cost of rebuilding the walls shall be paid by Binshounedir. The work shall be made good and firm, and shall be completed without delay."

All commercial statements were made under oath before the altar and the heavy state penalties for perjury kept many false statements from sliding over the tongues of the parties interested.

HANGING GARDENS A SOURCE OF INSPIRATION

Many of the best works of art turned out by the ancient workers in terra cotta were inspired by the wonderful possibilities of the Babylonian gardens. Possibly no country in the history of the world ever had such a wealth of artificial landscape. The vast number and size of its gardens is almost incomprehensible to us today. In addition to the great public hanging gardens and terraces, there were numberless private estates rivalling those of state, and all were filled with the most wonderful statuary, fountains and garden furniture, and surrounded by the most elaborate and beautiful parapets and balustrades.

In addition to these magnificent opportunities for the use of skillfully designed and costly terra cotta, nearly every house had its own little garden, affording opportunity for the design and use of home and cottage styles of pottery. Some of the smaller pieces found their way out over the seas in the custody of the roving Phoenicians, and examples of Babylonian art in modeled clay are not lacking in the ruins of many buried cities. Many of them offer suggestions for modern use.

HISTORY REPEATS ITSELF

The old conflict of the new with the established order is not yet ended. The Egyptian stone mason made his fight and lost because he was opposing the spirit of progress. The scene has shifted, and five thousand years have passed over their heads. Still their problems are our problems, and their differences akin to ours.

May their successes be ours also, and may we plan as skillfully and execute as well. The spirit of progress is eternal. The future is sealed to us, but the past is our heritage and we cannot complain, for it is a generous one.

CANADIAN CONVENTION ASSUMES PROMISING FORM

Steps have already been taken by the executive committee of the Canadian National Clay Products Association at a recent meeting held in Hamilton, Ont., to lay out an excellent program for the coming convention of that body, to be held at the Royal Connaught Hotel, Hamilton, on January 23rd, 24th and 25th, according to Gordon C. Keith, secretary and treasurer of the organization. Present indications point to a most successful and profitable gathering, which will be featured by a big entertainment at the million-dollar brick and hollow-tile hotel on Tuesday, the 23rd, and an equally attractive banquet on Wednesday evening. The opening session will be held on Tuesday morning, at which the election of officers will take place.

Something new in convention "stunts" will take place on Thursday morning, when A. F. Greaves-Walker, with whom all readers of "Brick and Clay Record" are well acquainted, will conduct a Question Box. As yet, acceptances have not been received from the various people that have been asked to read papers or otherwise take part in the proceedings of the convention, so the complete program is not ready for publication.

Suffice it to say that an enjoyable as well as a profitable time is in store for those who plan to attend the convention of our brother workers in clay across the border.

* * *

W. F. Schepflin engineer of Sandusky county, has resigned his position to become division engineer for the Ohio Paving Brick Manufacturers' Association. His territory will be in northern Ohio. Many years of experience make Mr. Schepflin well fitted for his work and he is, therefore, a valuable addition to the organization.

The SCIENTIFIC CONTROL *of the* FACTORY

Part I. Conditions, Wherein is Shown the Folly of Administration by Foot Work Rather Than Head Work and the Value of Centralized Control

By Dwight T. Farnham

WHEN KIPLING VISITED AMERICA in 1889 his comment upon the conduct of affairs in general was: "There is considerably too much guessing about this large nation. As one of them put it rather forcibly, 'We guess a trestle will stand forever, and we guess that we can patch up a washout on the track, and we guess the road's clear —and sometimes we guess ourselves into the deepot, and sometimes we guess ourselves into Hell.'"

DARING HAS HAD A LARGE PART IN SUCCESS

In the past the American business man's willingness to take a chance has been one of the mainsprings of his success. Conservatism does not plunge into the wilderness, face unknown dangers and return to civilization with the prizes of the forest and of the mine. Until the beginning of this century, the pioneer has been pre-eminent and it has been the man with courage, with daring sufficient to take a chance—and often a very long chance—who has succeeded. We, who have remained in civilization, never hear of the nine hundred men who played ten to one shots and whose bones lie in the mountains of California or under the glaciers of Alaska. It is the hundred successful men—the men who play the ten to one shot and win—who come back to the cities and, riding in motor cars and building palaces on Fifth avenue, advertise the results of daring. It is not unnatural then that "nerve" has come to be at a premium. This was right, and as it should be as long as the country possessed vast tracts of undeveloped territory waiting for the pioneer. Since the beginning of this century, however, the effect of the change in conditions has become evident very rapidly. California long ago put up the notice of "No Pioneers Wanted" and Alaska is getting to the point where she will soon hang out a sign reading "Standing Room Only."

The Despatch Office—The Home of Centralized Control—Which Keeps the Superintendent in Touch with Every Detail of the Business, Making the Least Demand Upon His Time

Methods which succeeded in the last century—the cut and slash methods of the pioneer, the recklessness which continually takes the long chance, running the railroad or the factory by guess—must vanish into oblivion with those picturesque features of the past, with the red shirt of the "Forty-niner" and the Indian dug-out of Puget Sound. A new set of conditions has arisen, and those who survive must be prepared to meet them.

The time was when a lucky guesser could run a clay plant successfully in almost any part of the country. Harriman once said:

"If you will guarantee that I will guess right fifty-one per cent. of the time, I will own the world in ten years."

Lots of clay plants are conducted on just that principle and, if they happen to be in a part of the country where competition is at all keen, they are not paying dividends. An exact knowledge of just what is being done, and of just how near that is to the best that *can* be done, is essential at all times if the superintendent is to operate the factory in such a way that his cost of production will remain at the lowest possible level, if the general manager is to maintain the greatest margin between cost and sales price and, if the president is to convey to his stockholders the full dividend to which they are entitled.

CENTRALIZED CONTROL

When the writer made his first great jump, cutting loose from the factory where he had served his apprenticeship with friends, and took charge of a plant which he was expected to run without assistance from anyone, he naturally received several pretty severe jolts. In the first place, he found that previous superintendents had had no place which they could call their own—no office, no desk, not even a table. They were evidently expected to go on and on, and never to possess a place to rest their head or the soles of their feet. The writer's predecessor, he was told, carried his papers in his vest pocket the first few months he was in control and, the last few months of his stay, slept off his previous night's "jag" every morning on a bench in the boiler room.

Inasmuch as the writer had a trunk full of engineering data, he didn't fancy the vest-pocket-office plan and one trial of the boiler room bench, which was infested with fleas, convinced him that rest there would cost him more whisky than he could at that time afford. He, therefore, started in on a campaign of reform which very nearly cost him his job. He demanded a desk, a private office and a time-keeper who could use a typewriter. Such unheard of affrontery and extravagance was at first looked upon as ruinous. A little later he asked for copies of the factory cost sheets. He was promptly told that the costs were one of the firm's secrets—that they didn't propose to have them become public property. He as promptly told the firm that, in that case, his resignation was at their disposal—that he didn't propose to be judged, and perhaps damned, by a set of figures which he never saw.

"Unscientific Management" in a Staffordshire (England) Pottery. It Will Be Noted That the Work is So Poorly Planned and Despatched That Four Employes Have Nothing to Do Until the One at the Right Finishes His Task. Efficiency in This Instance, Therefore, is Twenty Per Cent. or Less

This was perhaps strong talk for a youngster of twenty-four, but its justification lies in the fact that, within eighteen months, several other superintendents of the old office-in-their-vest-pocket variety were furnished desks voluntarily by the firm, were ordered to send in a letter at least every two days covering operating conditions and were handed copies of the costs each month with the request that they furnish the management a complete written analysis of the reason for fluctuations.

Subsequently, in traveling about the country, the writer found that the vest-pocket office system, which forces administration by foot work rather than by head work, was by no means uncommon, especially where the glorified foreman type, rather than the factory manager type of plant executive, was encouraged by the supreme authority in the firm. Under the former system factory management by guess can only be expected.

A CHEAP MAN DOES CHEAP WORK

The efficient management of a clay plant employing two or three hundred men is a big job, and the firm which turns over two or three hundred thousand dollars' worth of machinery, buildings and kilns to a hundred and twenty-five dollar a month man, with no assistance other than his one hundred and twenty-five dollar brains, experience and courage and expects him to earn them forty or fifty thousand dollars a year by running foot races all over the plant, usually earns what it deserves to earn. Regardless of what a firm pays a man, however, they should strive to make it easier for him to do what he should do, than what he should not do. If they want him to use his feet principally and to spend his time rushing around from one crew to another they should insist on the vest-pocket office. If, on the other hand, they realize that no matter how good a foot racer he is, he can be with each crew only a fraction of his time, and while he is with that crew ten or fifteen other gangs have an opportunity to loaf; if they want him to spend a portion of his time comparing what each crew did yesterday with what it did the day before and a year ago, and devising ways and means to repeat star performances and to avoid past failures; if they want him to use his head rather than his legs, they should insist upon the superintendent having a place to which he can retire and, in peace and quiet, consider ways and means of reducing his costs, improving the quality of his product and increasing the firm's earnings.

What a superintendent does, once he has retired to his office, depends, of course, upon his nature and the assistance or training he is given. He may withdraw to his office to smoke cigarettes, deeming it more safely removed from the eagle eye of the general manager, or he may use it as a center from which to control every detail of the business. This brings us to one of the most important principles of Scientific Management, variously known as *Planning and Despatching* or *Centralized Control.*

A DETAILED EXPOSITION OF CENTRALIZED CONTROL

The rachet principle—that of never letting go of an advantage once gained—has already been explained. The *Despatch Office* is the home of the apparatus which shows the superintendent at all times just what is being accomplished in each department and just how nearly this approaches the standard or what should be accomplished. This apparatus is so arranged as to "make a big fuss," as it were, immediately when anything goes wrong. In the dark ages Nature provided babies with strong lungs, so that they would not be neglected when in need of attention. At other times the mother was free to clean out the cave, tend the fire or cultivate the garden patch with a crooked stick. This was efficiency. The mother could feel perfectly sure baby was all right so long as he did not howl and could go ahead with her other tasks. The moment baby needed attention he got it—right away.

More "Unscientific Management" in Staffordshire. Note That the Runner's Work is So Poorly Planned That He Must Stand and Hold the Mold Until the Presser Is Ready for It

Very well, we want our superintendent to be free to study his technical problems—how to increase first quality ware, how to change his paving-brick mix to decrease his rattler loss, how to handle his fires to increase the brightness of his sewer-pipe glaze, how to keep his big fire-brick shapes from cracking in the drying. His are the best paid and so, presumably, the best brains about the factory and should, if freed from unimportant detail, be best able to solve or plan the solution of these important problems. Moreover, when something goes wrong—something which will interfere with the operation of the plant, decrease the output and send the costs up—then he should be notified, *and notified at once.* If the only interruptions to plant output were perfectly obvious matters like boiler explosions, for instance, the superintendent would need little equipment to realize what was happening and to rush up with the best remedy possible.

An Example of the Lack of Proper Planning and Despatching. The Work for Which This Crew Was Assembled Was Not Ready for it Upon Arrival at the Job. Consequently, Seven Men are Standing Idle

EFFICIENCY OF KILN LOADING

Unfortunately, however, while many of the diseases of clay plant operation are much more subtle than boiler explosions, they are none the less just as dangerous. Take, for instance, the matter of kiln loading. Every good superintendent knows that it takes about so much coal (practically, even if not theoretically) to burn a kiln of ware an hour—say on high fire—regardless of whether that kiln is loaded to seventy or ninety per cent. of capacity. If it takes a ton of coal to burn a thousand brick when the kiln is loaded to capacity, it will take very nearly as much coal to burn the same kiln the same length of time loaded to ninety or seventy per cent. capacity. If the kiln holds 100,000 brick loaded to capacity (which would represent the carefully determined standard), it would require 100 tons of coal to burn it off. If the kiln continued 100,000 brick, the coal per thousand would amount to 1.00 tons. If it contained 90,000 brick, the coal per thousand would amount to 1.11 tons. If it contained 70,000 brick, the coal per thousand would amount to 1.42 tons. If your plant capacity is 50,000,000 brick a year and coal costs $1.50 per ton, it costs you $.46 a thousand or $23,250 more per year if you are getting only seventy per cent. of standard in your kilns instead of ninety per cent. In other words, if your "Efficiency of Kiln Loading" is seventy instead of ninety per cent., you are throwing away more than twenty thousand dollars a year. How many superintendents know every time a kiln is set just how nearly it is loaded to capacity, *in figures which cannot be mistaken?*

DRIER TURNOVER

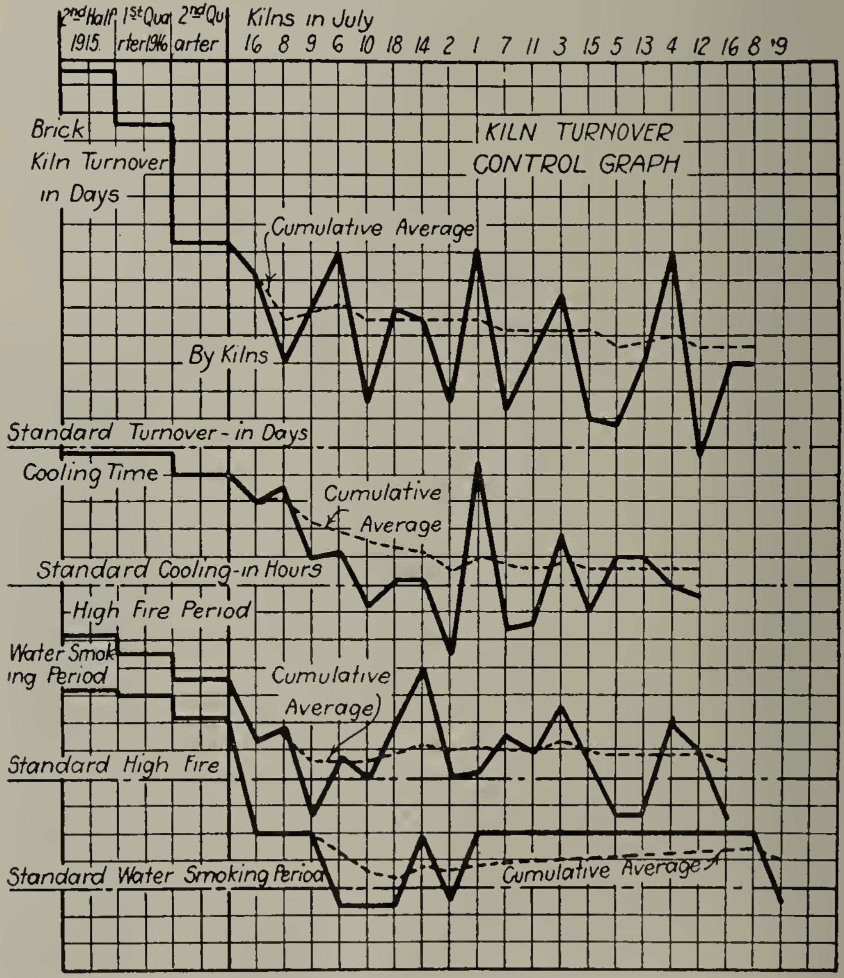
Another example: A great many sewer-pipe and fire-brick plants have insufficient drying space when operated in the usual way. Consequently, they are the greater part of the time either cracking ware by putting the heat on it too soon, which means a heavy floor loss, or they are setting "green" ware, which means either a longer burning time with increased coal consumption or heavy loss in the kilns, *or both.*

Merchants have what they call their "annual turnover," which refers to the number of times they "turn," or completely dispose of their stock each year. The more often a merchant can so turn his stock, the more money he can make on a given amount of capital invested. Thus, if he has $10,000 invested in groceries on which he makes ten per cent. every time he sells his whole stock, he makes $1,000. If he sells this stock three times a year, he makes $3,000. If he sells it four times, he makes $4,000 on the same investment of $10,000.00. The same law applies to fire-brick, sewer-pipe and other floor-dried products. The quicker you can get them out of your shop, the quicker you get your money (payroll, material expense, etc.) out of it, and the more quickly you can put something new in its place, the more times you can turn your capital *and the larger are your net profits.*

It is essential, therefore, that the superintendent know what his floor turnover is at all times and how nearly he is approaching standard both in total floor turnover and in turnover on each class of product.

KILN TURNOVER

In a previous chapter we went into the importance of keeping the burning time as short as possible and the economies in coal consumption effected by so doing. In addition to this saving the principle stated in the preceding paragraph also applies, so that there is an additional reason for keeping down the kiln turnover. Where a plant is short on kiln capacity a reduction in kiln turnover (or, in other words, the burning time) often saves the investment of thousands



Control Graph Showing Reduction In the Number of Hours Covering Kiln Turnover in the Burning and Cooling Periods. This Was Brought About in Four Months Thru the Application of the Principles Described in the Accompanying Article of dollars in new kilns. About a year ago, the writer spent a week investigating conditions in a plant which was making 60,000 brick per day, burning them in twenty-six kilns, which had cost about $225,000 to erect. They were contemplating increasing their output to 90,000 per day and the superintendent told me that the only way they could do it was to build more kilns, as the kilns were the limiting factor. An analysis of conditions proved that certain changes in the kilns and methods of burning would make it possible to increase the capacity to 90,000 without erecting a single new kiln, that the expenditure of $112,500 for thirteen new kilns was wholly unnecessary. A knowledge of that factory's standard kiln turnover would have been very much worth while to that company. Yet how many superintendents know exactly what their kiln turnover is averaging at all times and just what percentage that is of the lowest practicable or standard turnover?

TYPICAL INSTANCES OF WHAT A SUPERINTENDENT SHOULD KNOW, BUT OFTEN DOES NOT

These three instances—"Efficiency of Kiln Loading," "Drier Turnover" and "Kiln Turnover"—are cited as typical instances of what a superintendent should know, but very often does not know. There are any number of matters quite as important, the exact status of which should be brought to his attention frequently and forcibly, if he is to operate the factory at its greatest possible effectiveness. This brings us to the consideration of how the usual superintendent of a large factory with innumerable and unavoidable demands upon his time can possibly find time to figure out such a lot of things every day no matter how important a factor the information is in the efficient operation of the plant.

The answer is that he doesn't have time—and he would be doing himself and the company a grievous wrong if he took the time. When Frank Gilbreth laid out bricklayers' work so that they were free to put all their time on the work for which they received high pay—namely laying brick in the wall—he hired unskilled and cheaper men to do the sorting and to place the brick where the masons didn't have to carry them to the wall; when he taught his laborers to deliver mortar in such condition that the masons didn't have to work it over and freed his high-class men from everything except the highest class of work, he cut the cost of bricklaying in half. Whenever a three hundred dollar a month superintendent does the work of a fifty dollar clerk he is robbing the company of forty cents an hour in wages and no one knows how much in high class thinking and in executive work left undone. Sometimes, of course, a factory is so small that the superintendent has to be shipping clerk, bookkeeper, cost clerk and stenographer but, as a general rule, he should be freed from detail and clerical work of every sort. In no other way can he give consideration to the technical, mechanical and economic problems upon whose solution the very life of the plant sometimes depends.

It is necessary, therefore, to provide some sort of machinery to relieve the superintendent of clerical work and of the details of plant operation, but at the same time to insure that matters which should come to his attention do come to his attention *at once*, and forcibly when necessary. This is done by organizing a *Department of Central Control* or *Despatch Office*.

NEW YORK BUILDING, PAST *and* PROSPECTIVE

The beginning of the last quarter of 1916 sees New York building operators "holding the fort" with apparent ease; scarred a little, perhaps, by the inroads on cash boxes made by the incessant demands of labor, but yet cheery and optimistic. The country being in the throes of a presidential campaign, one would naturally look for unusual conditions, but the close of September saw a real fear of a general sympathy strike of all trades hanging over the largest city and yet, in spite of this, the building material market, as a whole, really quickened a bit and actually showed improvement.

The gigantic dream of "someone" to have all tradesmen walk out as a mark of sympathy for the street car men, amounted to little more than a dream, for somehow New York labor, being pretty well paid on the average (as high as $3.00 a day is being paid for eight hours to common laborers), sort of felt that real cash was a heap sight better than hearts as "big as barrels" and, while it still sympathizes with its brethren, it also believes that charity should begin at home and charity at home meant keeping the pocketbook and dinner-pail full.

Commodity prices are high. There is no question about it, but real estate values are not inflated. New York's transportation facilities are improving all the while and a new era is bound to follow the construction of new car lines. Long vacant department stores are gradually filling and there is plenty of new work being planned. Money is plentiful for all purposes and collections are good.

A new buying movement has started in the structural steel trade and this should result next winter and spring in a healthy activity for the building material market taken as a whole.

The renting market was never better. This means, if it means anything, that the building market is scheduled for a "boost," for investors do not sleep in Manhattan when there is anything like profitable real estate in which to put their money.

An enormous amount of money has been made on paper in Wall street and these paper profits will soon be realized on and, if the usual custom is followed, the profits will go largely into real estate.

For the nine months ending September 30th the plan filings for Manhattan amounted to $103,238,645, an increase of $48,502,495 over the same period in 1915. The increase is, of course, due to the extraordinary filings brought about by the new zoning restrictions and it is held that not all these buildings planned will be erected. But, on the other hand, there are indications that many of them will pass the paper stage for there does not appear to the average person any reason for delay when it is considered that prices for everything that has to do with building are steadily rising. Alterations planned for the same period in 1916 are valued at $16,571,602, which is an increase over 1915 of $9,432,844.

In the Bronx the plan filings for the first nine months of 1916 reached $14,283,282 where in 1915 they amounted to $20,555,050, showing a decrease of $6,271,768. There was also a decrease in Brooklyn of $2,010,235, the figures being for 1916, $27,155,040 and for 1915, $29,165,275. In Queens, plan filings reached $15,579,537, a decrease of $590,389 over the 1915 figures.

* * *

Pleasure is being expressed by the saggermakers of New Jersey over the termination of the saggermakers' strike in East Liverpool, Ohio, resulting in their affiliating themselves with the National Brotherhood of Operative Potters and returning to work in the plants which have been tied up by the strike of these men.

EARL E. LIBMAN

B. T. SWEELY

WINNERS *in* CERAMIC STUDENTS ESSAY CONTEST

B. T. Sweely, from Iowa State College, and Earl E. Libman, from the University of Illinois, Take Honors for their Respective Schools

IT is not with little pride and satisfaction that we announce the winners in the ceramic students' essay contest, which our readers will remember began on May 15th and ended one month following that date.

Among the short-comings of the clayworking industry there is one in particular which we will have to admit, if we look facts in the face, that has interfered materially with its progress. This practice is the application of rule-of-thumb to the building and management of clay plants instead of applying science and theory, coupled with practice, to the manufacture of superior products made of clay. Anyone who is acquainted with the history of the industry knows that this is a fact. The articles which Dwight T. Farnham is contributing to the columns of this magazine bring out this point very strikingly.

There are, however, a number of institutions about the country which have stood out as beacon lights on a sea of scientific darkness, literally speaking. These schools, which are about five in number, have established excellent departments in ceramics, wherein the value of practical knowledge is not under-estimated but where scientific principles are given their proper place in the study of the subject.

"Brick and Clay Record" has realized for a long time that the students of these schools have been doing some very useful work—work which should be brought more forcibly to the attention of the rank and file of clayworkers. These students are being graduated annually from the half dozen ceramic schools about the country and are finding places in many of America's clay plants. Our readers are, therefore, entitled to know just what these students are capable of doing and what they know. They should be more interested in seeing that they are given an opportunity to help raise the industry to a higher plane, to abolish rule-of-thumb methods and supply scientific principles, accompanied by good common sense.

SIX PAPERS WERE ENTERED

There were six papers contributed from two of the ceramic schools—three from the University of Illinois and three from Iowa State College. The time of the contest was unfavorable to the entrance of students from the New York State School of Clayworking and Ceramics, the Ohio State University and Rutgers College, students from these schools being busy with the coming graduation.

Out of the six papers submitted, two have been chosen—one from each school—as being well fitted for the prize offered, namely a membership in the American Ceramic Society, which includes the payment of the initiation fees and one year's dues.

B. T. Sweely, a student of the Iowa State College, who submitted a paper on "Porous Brick by Use of Sawdust," secured the highest grade, namely 79.

Earl E. Libman, a student from the University of Illinois, who submitted a paper on "Kiln Arches," secured the next highest grade, this being 77.5.

It is interesting to note that the winner from each school ranked first and second in the general summing up of the grades.

These papers will be published, the one on "Kiln Arches" in the November 7th issue and the other on "Porous Brick by Use of Sawdust" in the November 21st issue.

As we stated in the opening paragraph, we are agreeably pleased with the warm interest and hearty response with which the contest was greeted by the students in the ceramic schools. It was only the unfortunate time chosen for the contest, immediately preceding graduation, that interfered with the participation of many times the number that did take part.

WATCH FOR ANNOUNCEMENT OF ANOTHER CONTEST

We have been giving serious consideration to the "staging" of another contest in the near future, the announcement of which will be made in the next or following issue of this magazine. If our readers have any suggestions to offer concerning the way in which this contest may be conducted and, particularly, the prize to be offered, we will be more than glad to hear from them. As in any project which is fathered by us, we want everyone to feel that this is their contest and that each and every one has a part in its management, therefore, we await your suggestions.

COST ACCOUNTING *for the* CLAY PLANT

Tables Seven and Eight Presented in This Installment; Three More Next Issue; Half the System Will be Published by the First December Number

By A. J. Huac

CLAY PLANT OWNERS, who are interested in knowing exactly what their ware costs them to manufacture, are taking a quiet but warm interest in the series of articles and tables that is appearing under the above heading from issue to issue.

While very few are sending in questions or asking for further information concerning this uniform cost system, there is little doubt but that a number of readers will want to know more about it when the publication of the entire system has been completed. The majority feel that a question sent in at this time concerning any part of the system which has appeared might be answered if the inquirer had waited a little longer and secured the additional information which will be published in future issues. While this fact is no doubt true, we still wish to reiterate that we are at the service of our readers concerning this matter and anything that is not perfectly clear we will be more than glad to explain, if those who are troubled will write us.

We have come to the conclusion that the publication

TABLE NO. 7—BURNING

Line No.	Post From		Post To	
1	T19-XI	Labor or Equivalent		
2	T20-VII	Repairs, Tools and Supplies		
3	T2-22	Power		
4	T21-XV	Fuel		
5	(1 to 4)	Operating Total		
6	T28-35	Tons Burned	(11)	
7	(5 ÷ 6)	OPERATING COST PER TON BURNING		
8	T22-VII	Interest, Taxes, Insurance and Depreciation		
9	T13-21	Superintendence		
10	(8 + 9)	Overhead Total		
11	(6)	Tons Burned		
12	(10 ÷ 11)	OVERHEAD COST PER TON BURNING		
13	(7 + 12)	TOTAL COST PER TON BURNING	T16-16	

TABLE NO. 8—EMPTYING

Line No.	Post From		Post To	
1	T19-XII	Labor or Equivalent		
2	T20-VIII	Repairs, Tools and Supplies		
3	T2-24	Power		
4	(1 + 2 + 3)	Operating Total		
5	T29-40	Tons Emptied	(10)	
6	(4 ÷ 5)	OPERATING COST PER TON EMPTYING		
7	T22-VIII	Interest, Taxes, Insurance and Depreciation		
8	T13-23	Superintendence		
9	(7 + 8)	Overhead Total		
10	(5)	Tons Emptied	T10-4	
11	(9 ÷ 10)	OVERHEAD COST PER TON EMPTYING		
12	(6 + 11)	TOTAL COST PER TON EMPTYING	T16-17	

of only two tables each issue will spread the system over too long a period, therefore, beginning with the November 7th issue, we will publish three tables, so that by the first issue in December, one-half of the system will be in the hands of our readers.

However, for this issue, the following two tables are presented.

BURNING

The work of this department is to burn the ware, after it has been set in the kiln, into a marketable product. The labor item includes not only the actual labor of burning but also that for building wickets, starting fires, cleaning out fire-boxes after firing, opening up the kiln for cooling and similar work. In general, it includes all work done around the kiln in which none of the ware is handled, except the labor of repairing.

Power applies to burning when a forced draft, oil or air under pressure or some similar equipment is used.

The investment in kilns is to be charged to this department.

EMPTYING

The work of this department is to take the ware, which has been burned, from the kiln, either putting it in stock or shipping it.

Factories making flower pots or similar ware requiring crating will find it advantageous to charge the crating and shipping expense to the next table, No. 9—Loading from Yard.

The items on this sheet are very easily understood. Power is used whenever some power-driven method is used for emptying. The investment covered by this department is small. In fact, in most cases, it is almost negligible.

Factories making enameled brick or other ware requiring two firings can use duplicate sets of tables Nos. 6, 7 and 8 for the first and second firing.

We have considered the sorting of face-brick to be an expense connected with Emptying or Loading from Yard, as the case may be, and have, therefore, omitted it from this table.

* * *

Augustans Get Immense Paving Contracts

Two notable paving-brick contracts, for work to be done in Florida, have been obtained by the Hankinson Brick Company and the Georgia Vitrified Brick Company, both of Augusta, Ga. The first concern thru Lee Hankinson received the contract for laying seven miles of vitrified brick pavement in Seminole county, Fla., while the second company is to lay several miles of the same type of pavement in Putman county, Fla.

Seminole county, according to an Augusta newspaper, has appropriated $200,000 for paving roadways with vitrified brick, it being this work that the Hankinson company is to participate in, furnishing the brick from its Augusta plant. This county has just completed the laying of $200,000 worth of paving. Putnam county, where the Georgia Vitrified Brick Company is doing its work, has appropriated $300,000 for brick-paved roads.

Florida, perhaps, is doing more than any other state in the South to advance the cause of permanent roads. Counties other than those above-mentioned that have voted for dependable highway construction and the amounts, are Polk county, $1,500,000; Orange county, $650,000; Pinels county, $750,000; Hillsboro county, $1,000,000 and Volusia county, $600,000.

There can be no doubt but that the wonderful example being set by the "Peninsular State" is bound to be followed by a similar paving campaign in other sections of the South. The evidence shows that where permanent road construction is being done the value of the land is enormously increased, and that the upkeep of the brick road offsets its higher initial cost.

* * *

The Standard Manufacturing Company, which operates a large plant at Tiffin, Ohio, for the manufacture of bath room fixtures and similar clay products, will soon start additions and extensions requiring an expenditure of $100,000. A feature of the improvements will be the installation of a continuous kiln, which has proved to be a great money saver in this line of manufacturing. Natural gas is to be used in the burning of the company's products in the future.

The OPERATION *of a* PRODUCER GAS-FIRED CHAMBER KILN

Valuable Information for the Burner or Superintendent Who is Anxious to Know How to Best Handle This Somewhat New and Strange Piece of Equipment

By A. F. Greaves-Walker

(Continued from the October 3rd Issue.)

STARTING A GAS KILN is not a difficult matter. As soon as two or three chambers of ware have been set. about half of the floor openings in the chamber directly behind should be covered with brick. The wickets of this chamber should then be put up and mudded over. In the chamber behind this empty chamber, or the second behind the first chamber set, a few of the floor tile should be taken up so that fires may be started directly beneath the bags of the chamber ahead. Fires are then started beneath these bags with wood and coal, preferably slack. Connection is then made between the main draft flue and the last chamber set as shown in Fig. 2.

The fires are kept up until the bag-walls of the empty chamber and the crown just above are at a red heat, when the gas is turned into it. Burning gas in the empty chamber soon brings the walls and floor to a red heat and naturally very soon heats up the bag-walls of the chamber ahead, which is full of ware.

Considerable care is necessary during this period. The air control for the gas burning in the empty chamber, and later, in the chambers ahead, is thru the coal fires which are still kept burning in the under-flues. If these fires are allowed to get too low or are kept too open so that too much cold air is admitted to the gas, the flame will go out and the conditions may be right for an explosion. It is very easy to tell by the appearance of the gas when conditions are not right. It will burn brightly when the air control is right and become dark and smoky when it is wrong. It should be remembered too, that these coal fires must furnish the preheated air necessary for proper combustion until several chambers of ware have been finished. To let the fires out after the first chamber had been finished would mean that this chamber would lose its heat at once and this would prevent the proper finishing of the next chamber of ware. It is the best practice to wait until the fourth full chamber is ready to light before allowing the coal fires to die out.

The principal reasons for having an empty chamber between the coal fires and the first full chamber are, that the heat becomes somewhat tempered in passing thru the empty chamber and, therefore, does not shock the ware, and that it is much easier to keep the gas lit in the empty chamber than it would be in a full chamber, on account of the bulk of ware it is necessary to heat up before a dull red color is reached around the bags.

BURNING

As a rule gas is kept only on the high fire chamber, altho sometimes it is lit in the one ahead of the high fire chamber before the latter is finished. Very seldom is the gas kept on a chamber after it is finished for, in a properly operated kiln, it is absolutely unnecessary.

The conditions in a chamber when it is ready for the gas vary, of course, with the raw material, kind of ware and the kiln operation. When a chamber finishes at around 2,000 degrees Fahr. the chamber ahead will have a temperature of from 1,100 to 1,500 degrees Fahr. It is only necessary to open the valve connecting the main gas flue with the distributing flue and then the valves in the "down takes" leading to the gas ports. As soon as these valves are opened the gas ignites and the chamber is under fire. The main valve on the finished chamber is then closed.

In the gas kiln the center of the chamber has a great tendency to get ahead of the ends. It is possible to correct this by cutting down the gas supply at the middle ports, but this naturally slows up the burning. The best method of overcoming this difficulty and, at the same time maintaining or even increasing the burning speed, is to light up the two ports in each end of the chamber several hours before the high fire chamber is finished. This gives the ends a start over the center which will not be more than equalized until the chamber is about finished, even with the center ports going at top pressure.

"LEAD AHEAD" GAS TO INCREASE CAPACITY

When the kiln cannot be kept up to the capacity of the factory with only a single chamber on fire at a time, as is sometimes the case, the gas is often "led ahead." In this case the gas is lit in the chamber ahead of the high fire chamber, from six to twelve hours before the latter is finished. In other words, gas is kept on two chambers. In this way the chamber ahead of the high fire not only gets the waste heat from the high fire chamber, but also the heat from its own fires. In this way the burning speed can be materially increased. Of course, this can only be done when there is sufficient producer capacity to supply both chambers.

Perfect control can be had in a gas kiln thru the proper handling of the valves. There is not the slightest excuse for a fluctuation in the temperature of a chamber from one end to the other. The sight holes above the bags at each end of the chambers provide a means of detecting any variations in temperature almost instantly and the manipulation of the valve cords provides easy correction.

It is always necessary for the operator to give unceasing attention to the valves. Tar and soot are constantly accumulating between the valves and their seats, and the gas flow is thus diminished. This is especially true when the valves are only "cracked," as the slight opening is easily choked up. Sometimes only one or two of the valves "tar up" and the gas that cannot flow thru them is forced thru the other valves. This will cause local hot and cool spots in front of the affected ports. When valves choke it is only necessary to shake them slightly by pulling the cords to clear them.

NINE CHAMBERS FAIR AVERAGE TO CARRY

The number of chambers to be carried in a circuit varies with the size of the fan unit, the setting and the condition of the kiln. A fair average would be nine chambers. One of these would be on high fire, three ahead would be preheating with the waste gases from the fire, while the fourth ahead would be watersmoking. Three chambers behind the fire would be preheating the air for combustion, and the fourth behind would be supplying hot air for the chamber being watersmoked. The fifth behind the fire would be opened so as to admit the air to be preheated for combustion. The above might be varied by increasing the number of chambers ahead of and behind the fires, but it would be bad practice to carry less than three ahead and three behind, exclusive of the watersmoker and the chamber supplying the watersmoker with heat. See Fig. 3.

To a great extent the number of chambers ahead of the high fire should be regulated by the temperature of the waste gases as they are exhausted to the draft flue. On some kilns that are giving splendid results the temperature of the exhaust gases is seldom allowed to get above 80 or 100 degrees Fahr.

THE QUESTION OF DRAFT

It is extremely hard to say just how much draft should be carried on a gas kiln. Each kiln will vary somewhat according to the construction. Some kilns are so poorly built that it is impossible to get sufficient draft to insure a high burning speed, on account of the great number of air leaks between the fan and the fire. Up to a certain point the higher the draft used the greater the burning speed will be.

Under normal conditions a kiln which finishes a chamber every twenty-four to thirty-six hours should have one and one-half inches of draft on the chamber ahead of the high fire chamber, and two inches on the second chamber ahead of the high fire. These draft readings refer to conditions just after a fresh chamber has been lighted up. Normally, the draft will show a reduction of approximately one-half inch between the time a chamber is lighted up and finished. This means that on the chamber which has a two-inch reading when a fresh chamber is lighted, the reading will be one and one-half inches when the chamber is finished.

It is generally impossible to run around a big kiln with a "set" draft reading, as the amount of draft necessary is bound to vary in different chambers for several reasons, principally constructional. An expert burner, in addition to using his draft gauges, is governed by the sharpness of the flame as it leaves the ports. Under high draft the flame cuts sharply away from the ports, while under low draft it rolls slowly under the crown. A record should be kept on each chamber and, as soon as the best draft has been determined, it should be adhered to as closely as possible when that particular chamber is reached in the circuit.

FLASHED WARE EASILY OBTAINED IN GAS KILN

In ordinary burning the gas kiln will always produce oxidizing conditions, but reducing conditions can be easily obtained. It is extremely simple to get flashed ware if such is wanted, altho this result will not occur accidentally. However, as is the case with all continuous kilns, it is very hard to get any quantity of blacks or very dark colors. This is due to the fact that, while these colors can be easily given to the ware when it is under fire, as soon as it is off fire, the ware is reoxidized by passing over it the air necessary for combustion in the chambers ahead. Under the continuous system it is impossible to avoid this. Some clays do not easily lose the flash and, of course, in such cases, the dark colors are obtainable. Ordinarily, the colors predominating where flashed ware is made, are browns, purples, dark reds and combinations of these colors.

The method of flashing is extremely simple. When the finishing point of the ware is approached, the draft is cut very low. This causes the gas to smoke and the chamber is quickly filled. The chamber is allowed to remain in this condition for from fifteen to forty-five minutes and the draft is then raised and the chamber cleaned. The smoking is repeated with intervals of fifteen to thirty minutes and continued until the required colors are gotten from top to bottom. Some experimenting is necessary to determine just how long it is necessary to continue the smoking periods. Some clays take the required color in one period of forty-five minutes while others require the process to be kept up for ten or twelve hours.

Care must be taken during the reducing periods or the top course will get too hot and be deformed or melted. It is for this reason that the chamber is cleared occasionally. The draft being increased carries the heat from the top to the bottom and evens up the temperature of the chamber preparatory to another reducing period.

It must be remembered, when attempting to get flashed ware, that the conditions in a gas kiln differ from those occurring in other types. In order to get the chambers off quickly and preserve normal conditions ahead and behind, it is necessary to carry the chambers along to almost the finishing point under normal conditions, leaving the reducing periods to a few hours near the finish. Also, it must be borne in mind that the entire firing period is only about twenty-four hours instead of from five to ten days as is the case in a down-draft kiln or from three to four days in a coal-fired continuous. With clays that are likely to "black core," any attempt to reduce a chamber over the entire firing period will cause trouble, thru the effects on the ware in the chambers ahead. This ware is passing thru the oxidation period while the chamber on fire is being "brought up" and, as all the gases from the firing chamber pass thru the chambers ahead, it is absolutely necessary that these gases be oxidizing and not reducing.

SUCCESS DEPENDS LARGELY UPON BACKING HEAT

As in all other types of continuous kilns a great deal of the success of the gas kiln depends on keeping the proper amount of "backing heat" or, in other words, maintaining the proper temperature in the chambers behind the fire. Emptying chambers too close up to the fire always causes trouble and lowers the efficiency of the kiln. Generally speaking, *at least four closed chambers* should be kept behind the chamber on fire, the air being admitted at the fifth. Another working rule is to keep enough chambers behind the fire so that the chamber which was last taken off fire does not lose more than half its temperature in the first twenty-four hours. Thus, if a chamber is finished at 2,000 degrees twenty-four hours after it is taken off, its tempera-

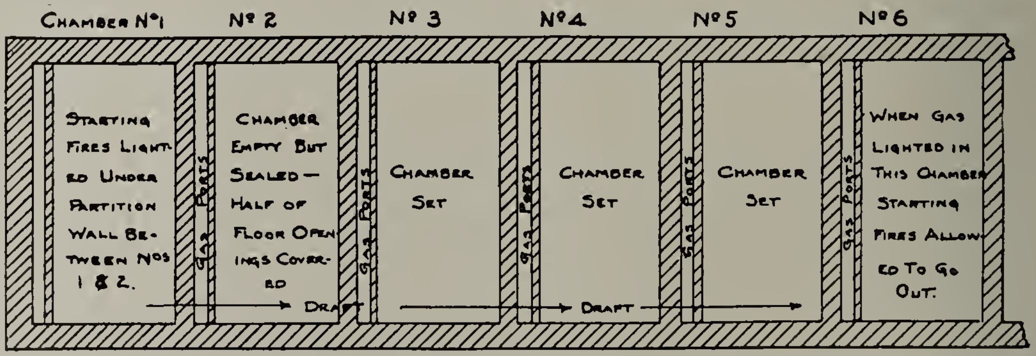

Chamber No. 1
No. 2
No. 3
No. 4
No. 5
No. 6
Starting Fires Lighted Under Partition Wall Between Nos 1 & 2.
Chamber Empty But Sealed—Half of Floor Openings Covered
Chamber Set
Chamber Set
Chamber Set
When Gas Lighted in This Chamber Starting Fires Allowed To Go Out.
Gas Ports
Gas Ports
Gas Ports
Gas Ports
Gas Ports
Draft
Draft

Fig. 2. Diagram Showing Method of Starting Gas Kiln

ture should not be less than 1,000 degrees. A kiln should always give good results if such a condition is maintained.

FIFTEEN CHAMBERS BEST

The question as to how many chambers it is absolutely necessary to have in order to get good results is an important one. Some kilns have been condemned as failures because there were too few chambers to maintain continuous operations. When a chamber holds a day's run and can be burned off in twenty-four hours the kilns should not have less than thirteen chambers. This allows for ten in the burning circuit, one setting and two being emptied. Such a kiln allows practically no leeway and, to be operated without interfering with the factory, it must run like clockwork. Sundays, holidays and factory delays would have to be taken full advantage of in operating such a kiln.

It is really best to provide at least fifteen chambers for good working conditions and to guard against emergencies.

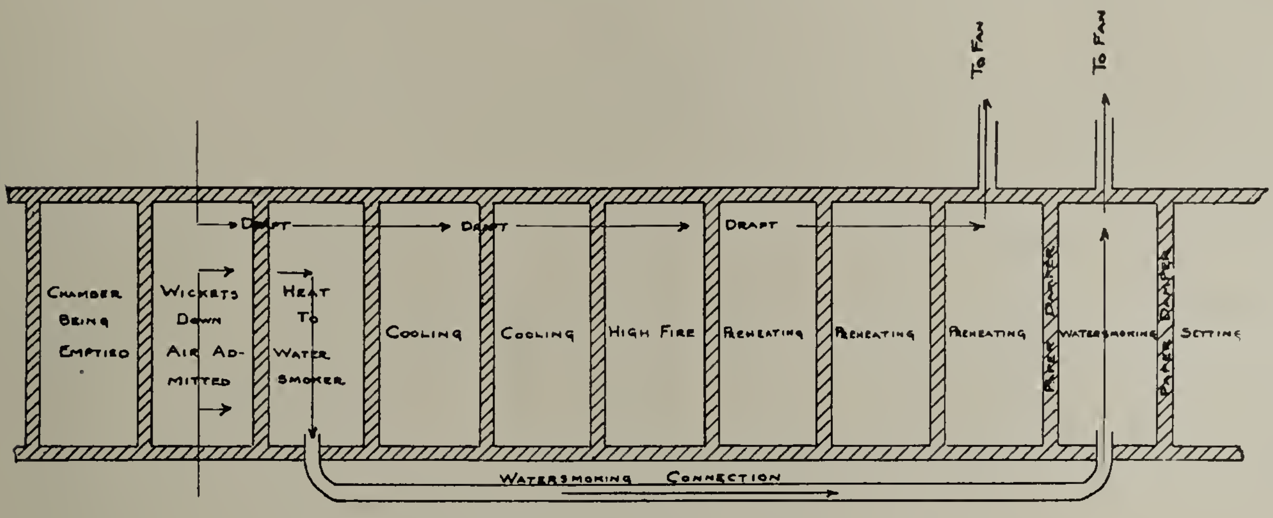


Fig. 3. Diagram Showing Burning Circuit of Gas Kiln

* * *

Nashville Brickmakers Entertain Local Club

The Nashville-Made Club of the Nashville (Tenn.) Manufacturers' Association was the guest of the Fulcher Brick Company of that city a few days ago at a sumptuously appointed luncheon and barbecue. More than sixty members of the club were gathered about the board. The hosts, J. P., Robert and Phil Fulcher were untiring in their efforts. Jubilee songs were rendered and photographs taken of the party. The visitors were shown over the entire plant and to many the process of making brick was a novelty. The plant of the Fulcher Brick Company covers several acres. There are seven kilns, five with a capacity of 250,000 and two with a capacity of 85,000 brick each. Two processes are used, the stiff-mud and the dry-press. Some of the men employed in the works have been making brick in Nashville for fifty years.

* * *

St. Louis Brickmakers Meet in Illinois

The Brick Manufacturers' Association of St. Louis, Mo.. a mutual "improvement" association that holds weekly meeting at various places, recently held a meeting at the Fern Glen Hotel of Belleville, Ill., where Warren Ittner, Edward Abend, John W. Kloess and C. P. Tomlinson of the Belleville Brick and Tile Company acted as hosts. Those present from St. Louis were E. J. Ryan, American Pressed Brick Company; B. F. Ittner, St. Louis representative of the Belleville Brick and Tile Company; John Bass, Hydraulic-Press Brick Company; Herman Bromschwig, College Hill Pressed Brick Company; Otto C. Oehler, Continental and Enterprise Pressed Brick Companies; W. P. Grath, Illinois Supply and Construction Company; H. C. Koenig, Missouri Pressed Brick and Improvement Company, and Jacob Stocke, Jr., of the Progress Pressed Brick and Machinery Company.

* * *

Hocking Valley Paving-brick Plants Merge

A merger of the Hocking Valley Brick Company, which has been operating a large paving-brick plant at Logan, Ohio, and the Nelsonville Brick Company, which has two plants at Nelsonville, has been effected. For the time being, at least, the two concerns, while managed by the same people, will retain their separate corporate names. J. L. Murphy is president of the new combine and will also be in charge of the sales department. Mr. Murphy was formerly connected with the Hocking Valley Brick Company. W. H. Parks is vice-president in charge of the plants. D. A. Evans is secretary of the Nelsonville Company, while E. H. Davis is secretary of the Hocking Valley Brick Company. All of the former salesmen, including M. M. Morrow and W. H. Lutchenberg of the Hocking Valley Brick Company branch and Charles H. Frank of the Nelsonville branch, will be retained. Plans are now on foot to combine the sales offices in Columbus. One of the offices, that of the Nelsonville Brick Company, has been located in the Wyandotte building, and the other at 8 East Broad street. The Wyandotte office will be moved, as the State of Ohio has purchased the building for offices.

* * *

Clevelanders Working for Better Streets

"Make Cleveland the best paved city in the United States." This may become the slogan of the "Committee of One Hundred" and the citizens of Cleveland, Ohio, before the present campaign for repaving the streets of that city is completed.

At a special meeting called on October 4th, the members and executives of the above mentioned body, which successfully carried thru the campaign for a $2,500,000 bond issue to be used in building a public hall, conferred with Mayor Harry L. Davis, with the object of putting thru a $3,000,000 issue for new pavements. All civic, business and industrial associations are represented in this "Committee of One Hundred." Fred H. Caley, president of the Cleveland Automobile Club, is chairman of the body. Ralph P. Stoddard, secretary of the S. A. F. E., has been appointed chairman of the advertising committee.

Publicity and educational methods will be used during the campaign, an effort being made to have authorized at the polls on November 7 the bond issue for the necessary funds.

While no definite statement has been made regarding the material to be used, it is known the present administration looks with favor upon brick as the permanent pavement for Cleveland.

Retires After Working Clay a Half Century

As the result of a change in the ownership of the Sheridan (Wyo.) Brick and Tile Company, George Cutter retires as the president and general manager of that company and Carl F. Kneisel becomes secretary, treasurer and general manager.

The retirement of Mr. Cutter marks the conclusion of a career in the burned clay industry extending over a half century, for it was fifty years ago that he mixed his first "batch of mud." In 1905, together with William Garrard, he founded the Sheridan company which, since its organization, has supplied ninety per cent. of the brick used in its home city.

The plans of the new owners of the company have not as yet been made known, but it is believed that many improvements will be made upon the plant which will be designed to greatly increase its capacity. At the present time, several new buildings in Sheridan, in which brick and terra cotta are being used, are under construction.

⁂

Brick Silo Gives "Perfect Satisfaction"

It is unfortunate that more information and data are not available on the brick silo. The suitability of hollow-tile for use in the erection of this type of structure is undisputed, the extended use of this material for the purpose in question being responsible for the almost inexhaustible fund of information which is available covering the hollow-tile silo.

But brick is giving good satisfaction in the construction of silos. "In price," says the "Farmers Review," thru whose courtesy the accompanying illustration is published, "the brick silo is about the same as one built of concrete." Whether or not this fact holds true thruout the country, is a subject for investigation. However, the real reason why brick has not been used more universally for silo purposes, according to J. P. Christensen of Racine, Wis., is due to the fact that, without some kind of a special reinforcement, it is practically impossible to build a brick silo with any assurance as to its not cracking, as has been proven in many instances.

The question as to the quality of brick suitable for use in silo construction may easily be answered by stating that most any type of medium or hard burned common will answer very well. The inside of the silo is usually plastered, which makes up for any inequalities on the interior surface. In localities where paving-brick are available they may be used with very good results and at very little, if any, additional cost, depending upon the distance it is necessary to ship them. The fact that this brick costs no more than the ordinary brick is due, first, to its greater size, and second, to the fact that a grade of brick may be used which would not stand the test for paving purposes, but which is entirely suitable for silo construction, therefore can be bought at a reasonable cost.

The silo shown in the accompanying illustration is sixteen feet in diameter and forty feet high. The total cost of material and labor was approximately $600. It was erected two years ago and has given perfect satisfaction. This silo is located on the farm of H. G. Crumb, McHenry county, Ill.

⁂

State College Builds Tile Poultry House

Simplicity of construction, economy of outlay and a unique ventilating system characterize the new farm poultry house to be built at Iowa State College, Ames, this fall. It is a popular type of poultry house, designed by the Iowa agricultural experiment station to meet the requirements of typical farm conditions.

Hollow-tile walls, concrete covered tile floor and a shed roof outline the construction. Eight feet high in front, six feet in rear, fourteen feet wide and eighty feet long, the house is composed of four identical sections, each 20x14 feet. Each section accommodates one hundred birds. Any number of sections can be added to increase the house to any capacity.

To secure ample ventilation and yet protect the interior from rain, the windows are built of four cellar sash, each sash overlapping the one below it and hung on sash centers to swing out and allow air entrance. Any or all sashes can be opened at once and yet the overlapping feature excludes possible rain. There are three groups of four sash in each section. Besides these, there is a ventilation hinge box on the cornice for summer ventilation. Nests and roosts are removable.

The house costs but $150 a section to build and is of most simple construction thruout. Because of the heretofore heavy call for poultry house plans, it is thought that the present plans which are now available will prove very popular.

⁂

Orders Carrier to Change Fire-brick Rates

The Chicago, Rock Island and Pacific railway company has been authorized by the Interstate Commerce Commission to maintain a rate on fire-brick, in carloads, from Versailles, Mo., to Omaha and South Omaha, Nebr., and Council Bluffs, Iowa, the same as contemporaneously in effect from Versailles, Mo., to said points of destination on like traffic via the more direct line of the Missouri Pacific, and to maintain higher rates to intermediate points between Jansen, Kan., and Omaha, Nebr., provided the rates to said intermediate points do not exceed the rate to Jansen by more than one-half cent per one hundred pounds for each additional twenty-five miles, or fraction thereof, beyond Jansen, and provided further, that the present rates to said intermediate points are not exceeded.

⁂

An East Liverpool (Ohio) pottery concern is reported to have purchased the Chelsea pottery property at New Cumberland, W. Va., and is making the necessary improvements and repairs incident to placing the plant in operation. The old Chelsea plant has been idle for a number of years.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

SPOILING A GOOD CUSTOMER

"I learned a lesson not long ago," confessed a salesman for a face-brick concern recently," and it hit me so hard that, while it's a reflection on me, I'm willing to tell the story in the hope that it may save someone else from a serious blunder.

"A certain architect, you can call him Smith, has always been 'sweet' on my line, and has specified it whenever possible. The result is that I've regarded his business as 'sewed up,' and have always asked and received the full price for everything I sold for use on his jobs. All of which, of course, was as it should be.

"Well, not many weeks ago I got into a job where it was a case of open competition. The architect had left the specifications sufficiently open to enable the contractor to use almost anything he liked, provided it came within the description set forth by the architect. I was anxious to land the business, as it involved a large building, and the advertisement of having my material go into this structure was also not to be sneezed at.

"I 'camped on the trail' of the contractor and did everything I could to convince him that he ought to use my material. I even went so far as to buy him a good dinner and take him to a vaudeville show one evening. Finally, he warmed up enough to tell me that I could have the business—if I would cut the price two dollars a thousand.

"I have always been able to get my price without shading, and the times I have cut under the standard are not especially numerous, but this was one of them. The size of the order and the prominence of the building were the factors which influenced me and, after a moment's hesitation, I told Mr. Contractor to sign on the dotted line.

"That was well enough, as the business proved to be acceptable to my firm and to the manufacturer, but the contractor seemed to think that he had put one over in getting the material at the price he did, and must have done some talking. Anyway, it got to the ears of Smith, my architect friend, that the brick he had been specifying and buying for his jobs at standard prices was being peddled around at cut prices.

"The next time I called to see him he was frigid. Finally, he came out with it, and expressed himself as believing that his clients had been given the raw end of the deal by being forced to pay the top price, when they could have secured the 'stuff' for less by introducing a little more competition. He concluded by saying that he would never again specify my line exclusively on any building. Of course, I explained my position—but this was a case where explanations didn't explain.

"I have heard all sorts of arguments in favor of sticking to the one-price standard and not playing any favorites, but this was a practical demonstration of what it means. The price-cutter may get the business now and then, but as far as I'm concerned—never again! And, like one of Billy Sunday's converts, I want to warn other rising young salesmen against making the same mistake."

* * *

As to Complaints

Indicating the modern attitude toward complaints, many of the big public utility corporations have created "service departments," the purpose of which is to take care of the kicks that concerns of this kind, as well as ordinary business men, are heir to. In the old days there was simply a "complaint clerk," who heard what customers had to say, and then did as little as possible about it. Now the manager of the service department endeavors to handle the complaint not only so that there will be no sting in it, but so that it may turn out to be a contribution toward public good-will.

The brick manufacturer or dealer may have the idea that a complaint is an unmitigated evil, but it is not. The very fact that many big business concerns make a point of sending out letters occasionally soliciting complaints, and asking if there is anything the matter with their goods or service in any way, shows that from one standpoint complaints are a good thing, since they point the way to better methods and indicate the weak spots in an organization. Rightly considered, therefore, a complaint is something to be taken hold of, studied and dealt with carefully, in order that it may be made a factor for positive good.

Really, however, the best way to kill a complaint is to attend to it. A brick man who has a big business—and every business, big or little, will get complaints at one time or other—said not long ago that his chief trouble is getting his subordinates to hop onto complaints as soon as they turn up, deal with them promptly and get them out of the way.

"If every complaint was handled the same day it was made," he declared, "every kicker would be converted into a booster."

He does not believe that "the customer is always right." On the other hand, he insists that quite frequently the customer is in the wrong. But, right or wrong, he believes that the customer is entitled to prompt attention and that, when this is given, a business-like, frank statement of the position of the company, following careful investigation, will get the O. K. of the patron, who at least will have to admit that the concern is not trying to dodge its responsibilities.

It is the complaint which is not attended to that grows in proportions and seriousness. The man who has a chance to nurse a grouch develops one of record-breaking magnitude, and the brick buyer who is not given a chance to dispose of his complaint once and for all, right after it is made, continues to mull over it until he comes to the conclusion that his grievance is one that can hardly be rectified. And then, of course, he is really and truly a difficult man to deal with.

One of the most prolific sources of complaints is the matter of failure to deliver on time. Of course, the transportation company may be to blame, the brick manufacturer having shipped the material in good time. The customer, however, has no way of knowing that; all he is interested in knowing is that he has not received the material at the time promised and, consequently, he is up on his hind legs demanding the reason why. If the brick concern was to anticipate these complaints just a little by following up deliveries, and endeavoring to put a little speed into the proposition, where needed, the customer would not be so likely to have cause to object. Even if there was a delay, the brick man could explain this to the buyer and, if the latter had not already started a complaint, he would appreciate the explanation and would be inclined to extend the time limit without a kick. It is the neglect of the matter that makes him want to kick hardest.

* * *

Let the Contractor Do the Estimating

Many a misunderstanding and subsequent loss of business has come about thru the brickmaker's and brick dealer's readiness to estimate the job for which he is supplying the material. Few, if any men in the business of handling or making the best of all building materials have missed the pleasure (?) of being requested by the contractor or, in some instances, by the builder to estimate the amount of brick needed for the job.

And, to their own misfortune and loss, many have attempted to perform this, the most distasteful of the contractor's functions—one that keeps him up burning the midnight oil figuring out the required amount of materials. However, should the builder have changed his plans regarding the original design and eliminated a sun-parlor or some other portion of the building which the brick dealer or manufacturer had included in his estimate, without notifying the would-be estimator, the contractor usually goes ahead and orders the specified number of brick with the result that, when the house is finished and the debris has been neatly piled outside the building, there remains an appreciable surplus quantity of brick—just enough to absorb all the profit on the sale when the manufacturer or dealer sends his men out to bring it back.

And it is usually necessary for the manufacturer or dealer to send for the brick for, upon viewing the excess-pile, the contractor immediately "passes the buck" to the man who made the estimate, and refuses to pay for them or haul them away.

The proposition of the contractor asking the concern from which he gets his brick to estimate the number required is no more ludicrous than for him to ask it to mix the mortar and lay the brick—only he sometimes finds a "sucker" that will grab for the bait first mentioned.

* * *

How To Pay Salesmen

The laborer is worthy of his hire. This brings up the question of how to pay salesmen. The matter of how much is not so important as the question of in what way. That is to say, shall it be a straight salary, a straight commission or a combination of the two?

A successful brick man said not long ago that he regarded any system of compensation, which failed to adjust earnings to the volume of business produced, as a failure.

"Your salesman must realize that if he delivers the goods he is going to get more money than if he falls down," he pointed out, "and, if he makes less when the orders do not come thru, he will feel impelled to hustle and will put forth an extra effort to produce. Of course, even the straight salaried man realizes that if he is not getting business he will not stay on the pay-roll very long, but it would surprise you to know how salesmen 'nurse' their business so as to prevent too much from coming in at once, when they are on a salary. They do not want precedents to be established that may be embarrassing as a basis of comparison later on. I know how this works, because I've done it myself!

"On the other hand, the salesman on commission, who is paid simply a commission, is likely to be over-enthusiastic. He wants business, without regard to what kind it is. He is anxious to have the firm assume credit risks which are hardly justifiable, so as to make his showing as good as possible. But without doubt he is fighting all the time, and working constantly to produce all of the business his territory or his section of the trade may be made to yield.

"That being the case, it is my opinion that the best plan is a combination proposition. Give a man a reasonable amount, and then pay him a commission on all business over a given volume. His effort to run his earnings up to the point he has in mind as his real value will mean more business than if he were assured this amount without having to produce a definite quantity of orders. At the same time, giving him the salary will put him under the direct control of the house and he will be subject to directions and supervision which cannot always be extended to the commission man. In my opinion, this is the ideal system."

* * *

Keep in Touch With the Trade

The successful brick manufacturer or dealer, who has reached the point where outside salesmen or office men are looking after the distribution of his product, may come to the conclusion that he can do just as much in his private office, as far as getting business is concerned, as he formerly did when he was active in mingling with the trade.

There was never a greater mistake. The personal factor is still too great an element in sales-making to warrant any brick man coming to the conclusion that his own personality is no longer needed to promote business. Subordinates and representatives may attend to the routine work, but the closer the "boss" can keep to his trade, and the stronger his personal connections are, the tighter business will be held in the face of competition of whatever variety.

In the distribution of brick and other clay products over a wide territory, the personal element is largely lost sight of but, where it is possible to make use of it, the brick man should utilize it for all that it is worth. And it is usually worth a good deal.

* * *

J. R. Marker, chief engineer and commissioner for the Ohio Paving Brick Manufacturers' Association, has been busy organizing the state of Michigan, which was recently taken into the association. Considerable paving is being contemplated in that state and Mr. Marker and his field men will make an effort to get brick specified.

CONGRESS SHELLED OUT *at the* POINT *of a* GUN

In all the discussion over the railroad strike that was in prospect of becoming a stern reality the first of September, those who deserve the strongest censure are not the railroad executives, nor the unions, but members of Congress. These last permitted themselves to be held up in broad daylight with the entire country looking on. They offered no resistance whatsoever, and are voicing no protest now, as with their pockets rifled, they return home there to collect as compensation for their cowardice the votes that friends of labor are expected to give them.

The President even doesn't deserve quite the same measure of censure as members of Congress. He is just one man, but they were many; he had to be the advocate for some plan of settlement, but the Congressmen were the judges. That he urged it didn't mean they had to accept it.

Congress, however, is a most pitiable example of sheer political cowardice. A few strong men in its midst pointed out this cowardice, tried to save Congress from its own lack of red blood and backbone by declaring that the unions were standing with guns to Congress' head demanding that it stand and deliver. But the cowardice, the streak of yellow, was too strong in their systems for them to be stirred by these efforts.

If any one believes the strike is settled by the new eight-hour law that person probably can only be found among these weak thinking Congressmen. The issue will come up either when the roads attempt to knock out the law in the courts or when they try to pass the additional cost on to the shippers. There probably isn't a single group of shippers in the country that will agree to accept the cost of this Congressional hold-up. The fight they will make before the Interstate Commerce Commission will be the voicing of the public's protest.

There's this further fact, too. The fight was not for an eight-hour day in fact, any more than this eight-hour law will make the brotherhood's day one of eight hours of labor with the rest of leisure. The fight was for an advance in wages to a class of labor already the highest paid in the country. Hence it is bound to come up again unless the brotherhoods are stripped of their dictatorial power in the meantime, or a real heart and real brains are put into Congress. Having forced the country to turn out its pockets once, it's perfectly safe to assume that, like any other ambitious highwaymen, the brotherhoods will return and further down the road seek to exact more money.

What irritates the American soul is not the union men getting more money, but the method of their getting it. The minute the brotherhoods refused to arbitrate, that minute they aroused the fighting blood of every real live citizen, and that minute the brotherhoods raised a suspicion as to the justness of their claims.

What the situation needed at its critical point, instead of meek submissiveness, was some strong talk, the speaking of a few wholesome truths, some of the "big stick." What if the President had said to the unions:

"It's not for me to decide that your pleas are just or not. I will name a board to settle that, but, in the meantime, you are not to strike. You reap the same benefits from the public as do your employers by being public service corporations. They enjoy certain advantages not enjoyed by private businesses and those advantages extend on to you. Therefore, you have no right to refuse to arbitrate and to strike and force suffering on this country.

"If you strike you will do so at your own peril. Remember, you will be striking against the public, not against soulless corporations, as you may imagine. It will be the public that will be hurt, that will starve, that may die, not the railroads. They will lose only a few dollars which will be easily replaced in after years. But what the public will lose cannot be replaced.

"This administration will do all in its power to reduce the suffering from such a calamity. It will move the mails, it will move the parcel post, and it will see that freight trains sufficient to carry food and clothing move, if it takes every member of the regular army and all the militia to do it.

"You cannot expect this public to sit supinely by and let you wield the power of life or death. No, sir, we will fight."

Would there have been a strike?—*"National Petroleum News."*

* * *

Freight Tariff News from Washington

The Kansas Buff Brick and Manufacturing Company of Wichita, Kan., has filed a complaint with the Interstate Commerce Commission against the Missouri Pacific and the St. Louis, Iron Mountain and Southern railways.

In the complaint the brick company states that there is in existence at present a rate of sixteen cents on common-brick, in carloads, minimum weight 40,000 pounds, from Buffville, Kan., to Brinkley, Ark. There is also a rate of thirteen cents in existence from Kansas City, Mo., which is further distant than Buffville to Brinkley. They allege that the sixteen-cent rate is entirely too high in comparison with the Kansas City rate. They ask that they be allowed reparation for the shipments that they have made and also that a new and more reasonable rate be put into effect.

The hearing which was to have been held at Sault Ste. Marie, Mich., on October 16, before Examiner Pattison, in I. and S. Docket No. 856, relative to brick shipments to that point, has been canceled by order of the commission.

The Interstate Commerce Commissioners have allowed the American Terra Cotta and Ceramic Company reparation amounting to $590.83 against the Chicago and North Western Railway Company, et al., because of an unreasonable rate applied on sixty-five carloads of fire-clay shipped from Sundown, Ind., to Terra Cotta, Ill., during the period from August 20 to December 1, 1913.

The commissioners have also awarded the National Brick Company reparation amounting to $95.76 against the Pittsburgh, Cincinnati, Chicago and St. Louis, et al., because of an excessive rate applied on 232 cars of brick from Maynard, Ind., to various Chicago points.

Carriers who were endeavoring to raise the rates on brick to Sault Ste. Marie, Ont., have canceled the objectionable schedules and, therefore, the commission has vacated its order of May 29, which it issued pending a hearing into the reasonableness of the advances the carriers proposed to make before the new brick rates went into effect.

The Haeger Brick and Tile Company has filed a brief with the Interstate Commerce Commission in their case, No. 8701, against the Chicago and Northwestern Railway Company, et al. The brief sets forth the complainant's side of the case, alleging that the rates on drain-tile to points in Minnesota are excessive. The case will be heard later.

Changes Name and Employs a Salesman

To remove the impression that its building material department is only a side-line, the names of the H. D. Conkey Coal Company and the H. D. Conkey Sand and Gravel Company of Mendota, Ill., have been discontinued, the business to be conducted hereafter under the name of H. D. Conkey and Company. With this announcement, recently issued by H. D. Conkey and Company, was a leaflet which described the various building materials, which it handles, but featuring brick and hollow-tile.

Another announcement made by this company that contains much interest is that A. B. Cory, formerly with the Western Brick Company of Danville, Ill., has joined the Conkey organization. He will devote his time to the sale of its building materials.

* * *

A Brick House of Many Colors

Washington (D. C.) brick manufacturers and dealers are very much interested in the erection of a building at that point of brick, which is certainly to be a departure from the usual thing.

A six-story apartment house is being built at the intersection of Eighteenth street and Connecticut avenue, opposite the British Embassy and in a very exclusive neighborhood. The apartment house will face both on Connecticut avenue and on Eighteenth street. Each of these sides is to be laid up in different colored brick, and the back, a part of which will be exposed to view, will be of a third color.

Clarke Waggaman, one of the best known architects in Washington, is in charge of the work. It is understood that one side will be of red brick, another side of buff colored brick and a third of a gray brick. Brick men there are interested in knowing how the plan is going to work out. The various kinds of brick are not being used in an effort to save money. Three different companies, it is understood, will be given awards on three different kinds of face-brick, which will number, it is said, about 200,000.

Minneapolis Dealer Buys Brick Plant

Besides having on hand orders that call for about 2,350,000 brick to be used thruout the state in the construction of large industrial buildings, high schools and banks, the Colburn-Murray Brick Company, selling face-brick in Minneapolis, Minn., is also supplying large orders for hollow building tile. Another plum that is reputed to have fallen into its waiting hands is the supplying of a large quantity of face-brick to be used in several industrial buildings to be erected by the Minneapolis Industries Association, shipment on the first order having already commenced. These buildings are to be erected to attract manufacturing establishments to the "Flour City." The Colburn-Murray company has also caused a sensation in the Northwest by purchasing a large brick-making plant at Barr Station, near Zumbrota, Minn., for $40,000. The original builders of this plant sunk something like $300,000 into the enterprise before they went out of business, and a second attempt at making it go resulted in another heavy loss, somewhere in the neighborhood of $150,000 or $200,000. However, the new owners of the big plant look for no such experience. Their aggressive spirit is a guarantee that not only will the plant be made to operate successfully but, for the first time, the manufacture of face-brick, on a large scale, will be attempted in Minnesota. About 80,000 brick will be turned out daily.

* * *

New Pottery Agreement Soon Effective

Moldmakers, kilnmen and pressers, all of whom are affiliated with the National Brotherhood of Operative Potters, are eagerly awaiting the wage increase that will be given them in all of the large potteries on November first. Adjustments that will concern the packers and dippers will also become effective on that date. The new agreement will be in force for two years but, in the event of foreign competition affecting the price of ware, the pottery owners have the privilege of calling a wage conference, if notice is given before November 1st, 1917.

MOTOR TRUCK SPEEDS UP DELIVERY SERVICE

So much has been said concerning the many advantages which the motor truck offers to the clay products manufacturer in the delivery of his materials that it would seem most of the arguments have been exhausted. The cost reducing feature of motor-driven delivery equipment has been well covered. Clayworkers have been shown how trucks make it possible for them to serve a wider market at better prices, but the Laclede Christy Clay Products Company of St. Louis, Mo., says that, while its records show the cost of operating its truck equipment over teams as being about the same, the company is in a very much better position to serve its customers.

Its trucks are capable of handling from three to four times the capacity of the former horse-drawn equipment and probably make that many more trips to its customers. William T. Christy, vice-president of the concern, says that while there is no material saving in the actual outlay as between the two types of delivery equipment, you will note from the above that it is capable of serving about twice the number of people than the company might otherwise be doing, the quicker deliveries resulting at the same time in more and better satisfied customers.

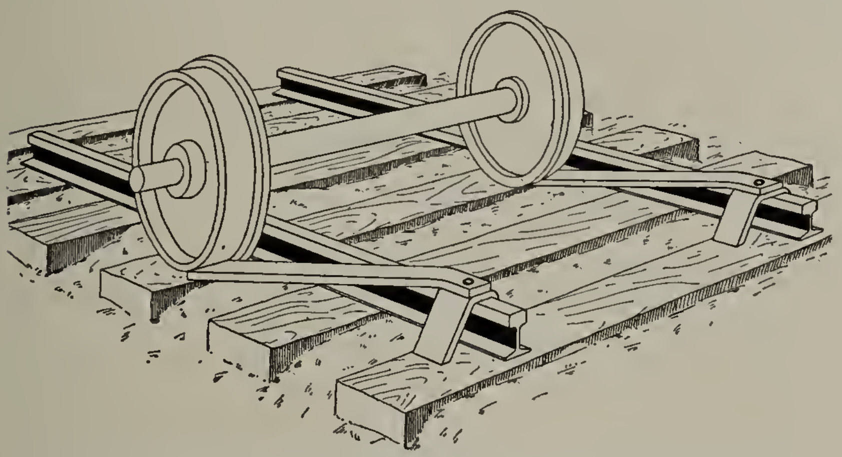
The accompanying illustration shows one of the company's trucks being loaded with sewer-pipe for a local delivery.

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

A Rerailing Jack of Simple Design

An ingenious jack for rerailing a car that has been thrown off the track is shown in the accompanying illustration. Its simple design and effective operation make it worthy of consideration. Its value to the clay products manufacturer can hardly be denied since the use of clay hauling or drier cars is necessary on most all plants, and the fact that it has been taken from a large paving-brick plant that hauls cars which carry exceptionally heavy loads, is sufficient proof both of its strength and usefulness.



How Two Simple Rerailing Jacks are Used to Replace Dislodged Cars Upon the Track—Quickly and Without Trouble

Simplicity is stamped upon it, since it consists of nothing more than two pieces of iron or steel properly bent and fastened together, and is used with as little trouble as can possibly be expected. One of the pieces is made to grasp the rail ahead of the dislodged wheel, closing about the head of the rail on the inside and running down to the tie or roadbed on the outside of the rail. To that portion of it which rests upon the top of the rail is fastened another piece, considerably longer, that runs down to the front of the wheel, alongside the rail.

In running the car up the jack, from which it drops into its proper place upon the rails, a vigorous push on the part of the men, in the case of a lightly loaded car, or the "gentle" tug of the dinkey engine, in the case of a heavily loaded car, is all that is needed. The flange of the wheels prevents the car sliding from one side to the other on the jacks, since two are necessary, one being used for each wheel.

When the car has been rerailed, the jacks may be clamped up into a comparatively small package, as the bolt connecting the pieces is not tightly fastened.

* * *

Using Heavy Rails Cuts Maintenance Cost

Considering the amount of rail in use on the average clay products manufacturing plant in the pit, the drier, for the transfer track and leading into the kilns, the problem of its up-keep is no longer to be lightly regarded. With the increasing price of iron and steel, the cost of rails is becoming greater, therefore, the necessity for reducing the expense incident to their use arises.

Possibly one of the best methods of doing this is to use a heavy rail which is capable of withstanding the tremendous pressures and strains that this equipment receives, instead of a light and, consequently, weaker one. While the initial cost may be somewhat higher, the thought of "Buying Well" reminds us that first cost is not the last cost.

Cut the cost of your rail upkeep by using a heavy rail, one that will not only last longer and give more efficient service, but that will preclude the possibility of shut-downs caused by the failure of a light and weak rail.

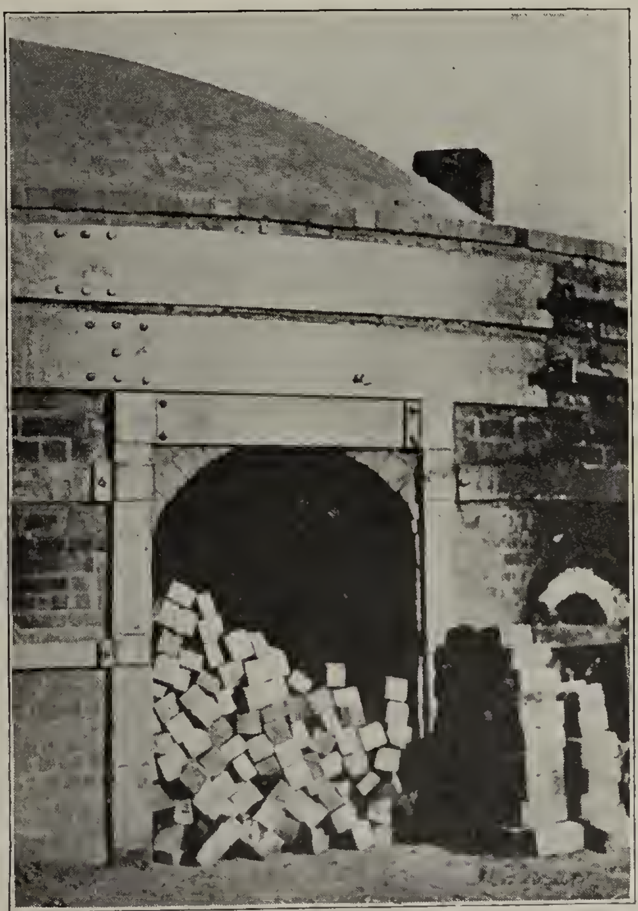
* * *

Discarding Kiln-door Cross-bars

The old stand-by, the kiln-door cross-bar, is rapidly becoming extinct in the clayworking industry. For years it has been fastened to the iron uprights at the kiln-door opening before the fires were lighted and prevented expansion, to a certain extent, of the kiln walls and bands, consequently, prolonging the life of the kiln several years.

But its utility has always been hampered by the trouble it involved, so that many efforts have been made to find some other device to perform the work of these bars. One of these is pictured in the accompanying photograph, which shows a form of kiln-door construction that is capable of withstanding the excessive head reached in the paving-brick kiln without any danger of pulling apart.

It consists of two heavy iron uprights that are sunk deeply into the ground, one at each side of the kiln-door. To them is fastened the iron bars that circle the kiln below the top of the door. A strong cross-piece holds them firm just above



Kiln Door So Designed That Cross-bars are Unnecessary, Eliminating an Old-time Clay Plant Adjunct

You Should Know of the Many Advantages of
THE POTTS SPECIAL
A Soft Mud Brick Machine
Self Striking—Horizontal—for Common and Fire Brick
Ask Us for Details and Names of Users
C. & A. POTTS & CO., Indianapolis, Ind

BRICKMAKERS' HEADQUARTERS
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A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
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Manganese Dioxide
We will be pleased to have your inquiries for prompt and forward shipment.
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UNION STEEL CHAIN BELTING
Runs on Standard Cast Iron Sprockets
Specified by leading Clay-Working Engineers because of low ultimate cost.
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Send for Sample
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WE CAN SAVE YOU MONEY
On clay working machinery. Repair parts for "McKenzie" brick and tile machinery. Hollow block, Fireproofing and special dies. Write for catalogue.
Brazil Machine & Foundry Co. **Brazil, Ind.**
We Furnish Repair Parts for the Kell's Line of Brick and Tile Machinery

Don't Neglect This!
Replace your plain babbitted bearings as quickly as possible with this combination graphite-babbitt sheet lubricator. It saves 75-90% oil. Saves belts. Write for information and trial order plan.
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WOODHOUSE Welded-Link Chains
for Steam Shovels, Sling, etc.
WOODHOUSE CHAIN WORKS, TRENTON, N. J.

GOOD IDEAS
don't cost you anything if you get them from the ads you see in "Brick and Clay Record." Read them.

the door, resisting the strain placed upon them by the walls and bands when the kiln is under fire. The matter of great importance, of course, is to have them sunk deeply enough into the ground to insure a firm and rigid position thruout the burn.

* * *

A Chart for Quick Pulley Computations

This simple little chart does away with formulas for pulley computations. It will be found to be an exceedingly quick and satisfactory method of determining the sizes of two pulleys to be used in a drive, since, in solving the problem it is only necessary to slide the paper from position "A" to position "B."

For example, a motor running at 1,200 r.p.m. is to drive a line shaft at 300 r.p.m. What sizes of pulleys should be used?

On the slip of paper in position "A" make marks opposite 300 and 1,200, as shown on the chart. While it really is unnecessary, it might be well to write 300 r.p.m. and 1,200 r.p.m. opposite these marks for the sake of insuring correct results.

Then slide the slip of paper up to wherever you want it. Position "B" shows that pulleys fifteen and sixty inches in diameter, respectively, will do the work very well.

Of course, if these diameters are considered too large, just move the slip a little higher until more suitable diameters are specified. No matter where the slip is placed, the ratio is always correct—no figuring is necessary.

The chart also lends itself readily to the solution of such a problem as, knowing the pulley diameters and knowing the speed of one of the pulleys, what is the speed of the other pulley? Try it. It is so easy that it needn't be explained in print. You can "guess it" in a minute.—*N. G. Near.*

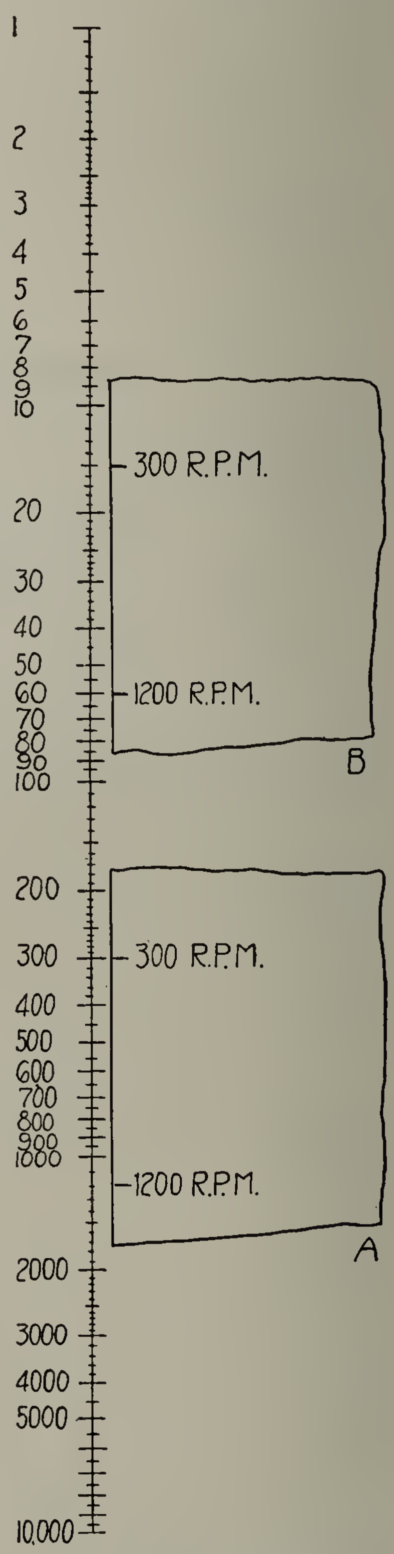

Chart to Determine Pulley Sizes and Speeds

* * *

Uses Bats for Kiln Foundations

Using bats and seconds in a profitable manner is a problem that many brick plants have yet to solve. A good use for this material, to judge from the statements of one manufacturer who has tried it out, is to bury them in the foundation of that new kiln that you are constructing, building up your feather-walls and other underground structural work with them instead of first-class brick.

The Semi-Monthly Trade Review

THE PROSPERITY that has prevailed in business during the past nine months continues unabated, and building activity, soaring high above the records that have marked previous years' work, bears evidence to the fact that manufacturers of burned clay building materials are coming in for their full share of the "melon."

DEMAND FOR BRICK BEYOND SUPPLY

In many centers where the demand has been unusually heavy, the question presented to brick and building tile manufacturers is not one of keeping busy by getting the business but rather of increasing their plant capacities and producing as much ware as possible to supply the tremendous demands that are being made upon them. When we look around for the cause of this activity, we find confronting us the fact that, while all other building materials have taken to aeronautics, as far as price is concerned, burned clay, altho advancing sufficiently to overcome the heavier demands of labor and greater operating expenses, is still, comparatively speaking, at "bed rock" levels. The tendency is, therefore, to use as large an amount of this material as possible, so brick industrial structures, which practically preclude the use of high-priced steel, are fast becoming a popular type of construction.

Another interesting feature of the building of the past few months is the fact that in many centers the construction of homes has greatly increased. Since employment for everyone willing to work is to be had for the acceptance, the income of the average family has been greatly increased, with the result that there has been a decided movement all over the country for better homes.

EARLY RAINS SLACKEN PACIFIC BUILDING

Viewing the condition of national building from San Francisco, we find some very encouraging situations existing. While building in that city has suffered somewhat from early fall rains and, for this reason, no new work of importance has been announced, yet there is a great deal of extensive repair and alteration work going on and the number of big structures already under way is sufficient to assure a more than usually active winter for the building trades. The volume of brick manufactured in this district the current year is larger than for several twelve-months past. Terra cotta and sewer-pipe are having a fairly good movement, with the demand for large sizes of the latter product showing an encouraging increase.

CENTRAL CITIES REPORT LARGE INCREASES

More favorable conditions, however, exist in the more central cities, Omaha reporting a large increase in the

You Pay Only ONCE
for the belt joint you make with
CRESCENT BELT FASTENERS
It is the safest, the most efficient and the most economical belt joint you can make. It "outlasts the belt."
Ask for Booklet Three
CRESCENT BELT FASTENER COMPANY
381 Fourth Avenue, New York

SIL-O-CEL PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder. Has 10 to 12 times the heat insulating value of firebrick.

Produces absolutely uniform heat and reduces fuel consumption.

The reduction in rejected pieces will pay for the insulation in the first month of operation.

Prevents Heat Penetration

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Write nearest Office for Samples and Information.

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Dies for Clay Working, our Specialty. Brick, Fireproofing, Plain and Ornamental Hollow Ware Dies, for Auger or Steam Press; Piano Wire Clay and Sand Screens, Conveyors, Elevators, Dry Pan and Pug Mill Automatic Clay Feeders, Friction Winding Drums.
The Louisville Machine Company
Louisville, Ohio
Patentees of *The Roller Process Paving Block System*

Sand-Lime Brick Plants and Machinery
Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.
Let us Serve You.
Jackson & Church Company
Saginaw, Michigan

number and value of permits issued during the month of September, this year, over the same period in 1915, while Sioux City, Ia., reports building improvements made so far this year as totaling $3,000,000 in value, the largest in the city's history.

Convalescing from the drop of a few weeks ago, the building situation in Chicago is resuming its previously healthy condition, rapidly climbing the ladder of value until now the records show immense advances over the preceding few weeks, and also over the corresponding periods of last year. Figures for new business structures and improvements during September at this point show them to be 61 in number and $2,436,000 in value, compared with 57 and $2,221,300, respectively, for September, 1915. The value of all building permits issued during the first week in October aggregated $3,105,500, as compared with $2,291,200 the previous week, and $1,915,500 last year.

INTERESTING FIGURES ON DETROIT ACTIVITY

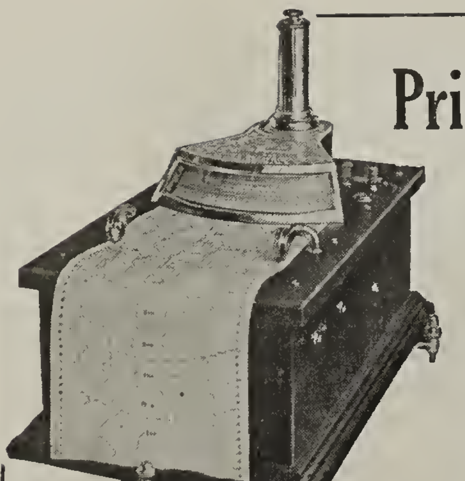
During the first nine months of 1916, expenditures for building in Detroit were greater than for any previous year in the history of the city, the value of the permits issued during this period exceeding by $3,378,000 the total value of those issued during the twelve months of 1915, which was the biggest year Detroit had ever seen up to that time. To October 1st, the total amount of building was $35,613,000, while permits for new structures issued during September amounted to 1,821 in number. Even now, there exists in the minds of architects, contractors, and builders, who see nothing ahead but prosperity, a need for 25,000 more homes. Despite the fact that the brick plants of this city are turning out a million brick a day, there actually exists a brick shortage. The big additions made to the plants at the beginning of the season which were thought entirely capable of supplying the demand, have fallen far short of doing this, and it is thought that there will be no opportunity to store brick for next spring's rush. This will undoubtedly result in an acute shortage at that time.

OHIO POINTS ENJOY GOOD BUILDING

Cleveland's record for the month of September is a high one, amounting to $2,713,780, while the total volume of this year's building to date amounts to $21,000,000. Dayton is also experiencing very active building, and Columbus operations are holding up exceedingly well. At the last mentioned point, September permits had a value of $548,065, compared with $504,710 for the same month in 1915, while an increase of almost $2,000,000 in value of constructional work has been made in the first nine months of this year over those of last.

Altho the demand for burned clay building materials in Louisville and thruout Kentucky is especially good, the volume of business being done is greatly limited by the car shortage, which has assumed menacing proportions in that section. Nothing better than merely local deliveries are being promised inside of thirty days which is, of course, holding a large number of jobs in abeyance. And a troublesome feature of the car shortage is that contractors and builders can not be convinced it exists until their own projects are affected by it. Orders that have been on hand for months, upon which it was impossible to get shipping instructions, are suddenly asked for immediate delivery, which is in most cases impossible.

Figures on building activity in Pittsburgh during September show a number of new projects as going ahead, while Philadelphia is busy with considerable work in the course of construction. The number of new jobs being contemplated at this last mentioned point presages a prosperous spell in the near future.



Price Pyrometers

Are just as important to the burner as a watch is to the engineer of a fast passenger train. Try to imagine your own predicament if you were forced to live for one week without any watches. Yet you allow your burner to guess at temperatures in $500 to $1,000 worth of ware.

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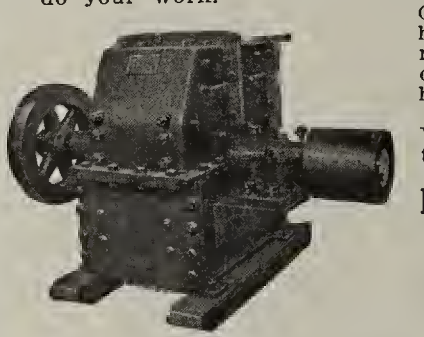
TRACK EQUIPMENT
Of Every Description
Especially Adapted for
Brick and Clay Plants

We manufacture
Portable Track, straight or curved, any gauge or radius.
Frogs, stiff or spring.
Incline Lay-outs, two or three-track.
Switch Stands, various styles.

NO MATTER
What you need in Track Equipment, write us first.
Ask for Catalog C3.

The Cincinnati Frog & Switch Co.
CINCINNATI, OHIO



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K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.

Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

Write today for full details to the

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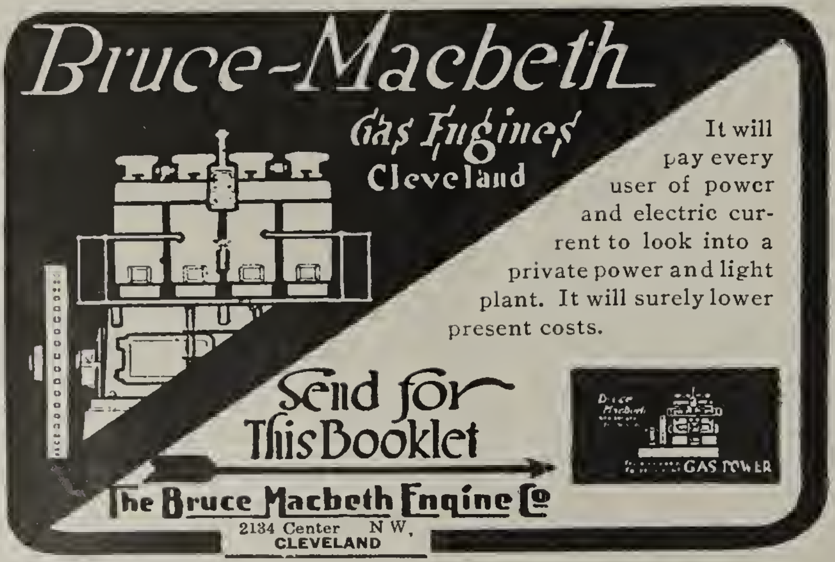


Bruce-Macbeth
Gas Engines
Cleveland

It will pay every user of power and electric current to look into a private power and light plant. It will surely lower present costs.

Send for This Booklet

The Bruce Macbeth Engine Co
2134 Center N W,
CLEVELAND

In Baltimore, the erection of homes for thousands of employes, recently added to some of the larger factories, has caused a big jump in the value of building. Many industrial plants, warehouses and stores have also been built at this point.

NEW TROUBLES IMPEDE NEW YORK BUILDING

The "hoodoo" that has shadowed building prosperity in New York City and the manufacturing conditions of the plants that supply this market shows no signs of giving up his hold on that section. While a brisk demand exists for brick and hollow-tile, labor conditions continue to present a vexing problem. During the last week in September, Hudson river brick were taken out of the market as fast as they arrived and because of labor shortage the production was much below normal. The chief reason for this is the wholesale desertion of the yards upon the part of the laborers, one notable example of which took place recently when more than one hundred and fifty negro laborers left for the South in one day because of a cold spell. Salesmanager Tuthill of the Sayre and Fisher Company, operating in the Raritan river district, portrayed the situation well when he said:

"We could not sell any common-brick if it were bringing nine dollars a thousand. Last week we had to buy from other manufacturers in order to keep certain imperative engagements. This week we are quoting no prices for the open market at all. We simply cannot get laborers enough to do the work, and those we have are very independent."

Prices for common-brick have taken a jump for this reason and are vacillating between $7.25 and $7.75 a thousand, wholesale.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

A. S. Cunningham has resigned his position as manager of the Ione (Cal.) Brick Company, and has been succeeded by William Brown of that point. Mr. Cunningham built the plant at Ione nine years ago.

John B. Sennett, superintendent of the Tiffin (Ohio) branch of the Standard Manufacturing company, was in Columbus recently attending a meeting of the Grand Chapter, Royal Arch Masons.

H. S. Hamilton, president of the McArthur (Ohio) Brick Company, was a visitor in Columbus the first week in October, calling on local dealers and agents. He says his greatest trouble is to secure sufficient cars to make shipments.

John B. Hill, a pioneer brick manufacturer of Eureka, Cal., died on September 27th at his home, where he had resided since 1864. He was born in New Brunswick, N. J., in 1844 and is survived by a widow and four children.

Leb Watkins, mayor of Newcastle, Ind., has just returned from a business trip to Plymouth, Ohio, where he purchased the machinery to equip the new brick plant at Shoals, Ind., in which he is interested.

Manganese Dioxide

All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

Crimora Manganese Corporation
15 Broad Street NEW YORK

Blasting without using the CYCLONE DRILL

is like hunting deer with birdshot. You can't possibly get good results.

We are ready to offer you facts and figures to prove that the Cyclone Drill will soon pay for itself.

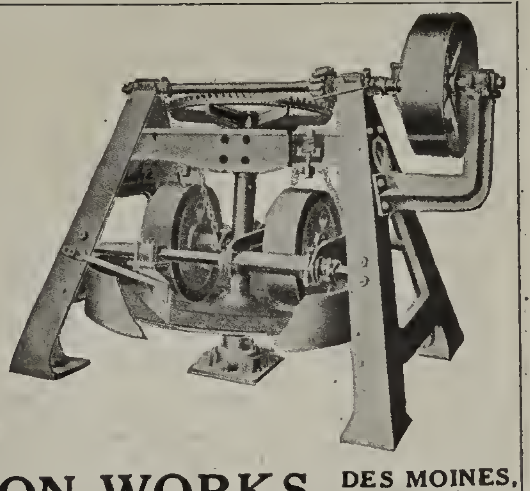
Ask for names of users and Bulletin No. 4

The Sanderson-Cyclone Drill Co.
ORRVILLE, OHIO

We can't say it too often—
When you think of cars, think of
Youngstown
They are made of steel—in the steel city—in the greatest clay district in the world. No better cars can possibly be made, and if you consider quality and satisfaction and low upkeep, you will have to give the highest honor to Youngstown Steel Clay Cars.

The Youngstown Steel Car Co.
Youngstown, Ohio

THE EAGLE DRY PAN



Write for Prices
EAGLE IRON WORKS DES MOINES, IOWA

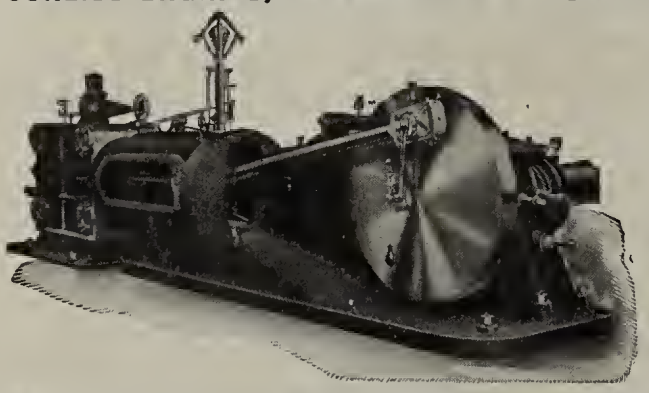
Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

The Stupakoff Laboratories
Pittsburgh, Pa.



POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS

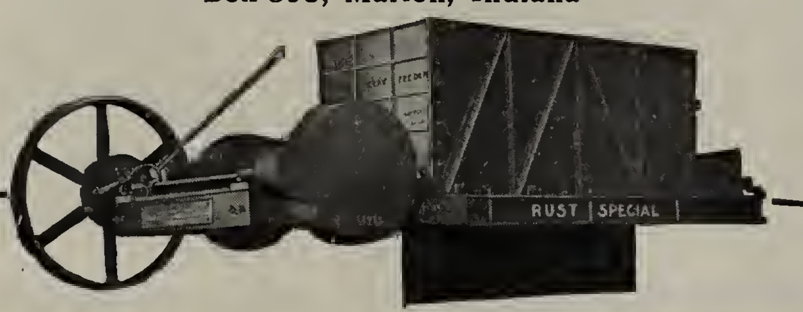
Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 BURLINGTON, IOWA

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices: Steubenville, Ohio
Mills: Newark, Ohio

BUCKEYE MEANS BEST
BEST MEANS BUCKEYE

All Sections from 12 lb. to 40 lb. per yard

Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

E. F. Telling has severed his connections with the Assumption (Ill.) Electric and Manufacturing Company, which produces brick and tile, and is now machine room superintendent of the Decatur (Ill.) Brick Manufacturing Company.

William Anderson, manager of the Union Brick and Tile Company, which is building a plant at Modesto, Cal., on the Tidewater, is busily engaged in looking after the construction of the new factory. He recently made a business trip to San Francisco.

Samuel Smith of the United Materials Company, was in San Francisco recently on business and pleasure. Because of ill health Mr. Smith has been residing in southern California for the past two years and, while he has improved, he is not now taking an active interest in the business.

Joseph Nussell, who for the past several years has been general superintendent of the Indiana Paving Brick Company's plant at Brazil, has resigned his position and has purchased a third interest in a new brick factory that is being established at Medora, Ind.

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, has been attending the convention of the American Society for Municipal Improvements, held at Newark, N. J. Mr. Blair, who is a member of the paving committee, has been watching the interests of brick.

LeRoy W. Gaddis of the Gaddis-Harrison Company, Columbus, Ohio, has returned from an inspection trip of a number of Ohio plants. While away, he visited the Keim Brick and Tile Company at Louisville; the Interstate Clay Products Company, Cleveland, and the Burton-Townsend Company at Zanesville.

E. M. Briggs was elected director to succeed E. H. Baker at the annual meeting of the Baker Clay Company, Grand Lodge, Mich., which was held recently. The remaining members of the board, all of which were reelected, are Clarkson Beck, D. D. Shane, J. W. Ewing, J. D. Summer of Grand Rapids, and Messrs. Stultz and Bibus of Huntington, Ind. R. Young, formerly of Sunset, Ohio, is the new superintendent of the plant.

That stepping on a rusty nail is not the most pleasant experience in the world will readily be testified by J. S. McCann, superintendent of the new paving-brick plant of the Streator (Ill.) Clay Manufacturing Company. Mr. McCann recently stepped upon one of these dangerous objects, burying it in his foot and consequently sported a pair of crutches for a number of days following. While the services of a doctor were obtained at once, some foreign matter is said to have remained in the wound that gave a great deal of trouble, but upon the application of the surgeon's knife the second time the pained and punctured member was again put in healthy condition.

Arkansas

Fort Smith and Van Buren (Ark.) business men have developed a new gas field having a daily capacity of more than 200,000,000 feet, according to information received from E. N. Hopkins of Fort Smith, who is closely allied with the agricultural and industrial interests of that section. The gas is already piped to these cities for manufacturing purposes, providing four-cent gas to clay manufacturers, as well as others. The new field, known as the Kibler gas field, has been tested out by local capital and will, undoubtedly, have a tendency to develop the clay deposits where its supply of gas is available. Government tests have shown the gas to run about 1,057 Btu's in heating value, proving it to be of a high grade. Indications point to a large and permanent field of this fuel.

California

The capital stock of the Simons Brick Company, Los Angeles, Cal., has been decreased from $600,000 to $300,000.

In order to fill an order for a million and a half brick to be used in the construction of the new plant for the Diamond Match Company at Chico, the Anderson (Cal.) Brick Yard is at present working full time with a crew of forty-six men.

The Richmond (Cal.) Pressed Brick Company has been compelled by the heavy demand for its product to build an additional drier. The new structure is about forty feet wide by one hundred and twenty-five feet long, having a capacity of 75,000 brick.

The city attorney at Richmond, Cal., has prepared an appeal in the case of J. E. Carey vs. the City of Richmond for damages. It is claimed that fraud entered into the award of $17,000 granted to Mr. Carey, owner of a brickyard at that point, last month. At that time he accepted a compromise of $17,000 in lieu of the $50,000 originally sued for.

Gladding, McBean and Company, San Francisco, Cal., report a favorable improvement in the demand for architectural terra cotta during the early part of the month. The company has had plans and specifications prepared for a new barn and tool house which will be built soon to replace the buildings recently destroyed by fire. R. B. Keeler, head of the company's drafting force at the Lincoln plant, has resigned.

Notice has been given that, at a meeting of the board of directors of the Atlas Paving Brick Company, San Francisco, held October 2nd, an assessment of five cents per share was levied upon the capital stock of the corporation, payable immediately. The delinquency date is set at November 6. The downtown office of the company is Room 808 at 201 Sansome street. The plant is located at Hollister and Griffith streets.

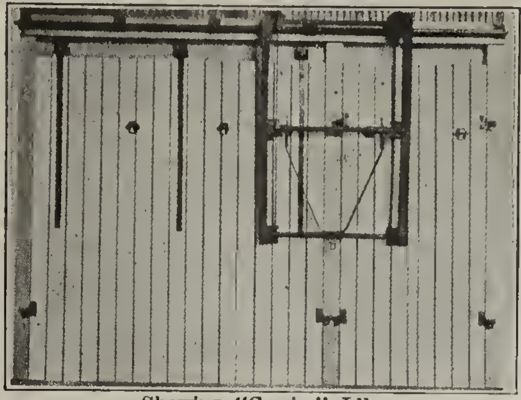
A heavy demand for pavers on the Pacific coast is reported by S. V. Costello of the California Paving Brick Company, San Francisco, Cal. This company, according to Mr. Costello, is just starting to erect a new paving-brick plant at Oakland, Cal., and will soon construct another large plant in Calveras county, near Valley Springs, Cal. All of the brick manufactured by the company are finding a ready market at $30 a thousand. Mr. Costello attended the National Paving Brick Manufacturers' Association convention held recently at Terra Haute, Ind.

The Port Costa (Cal.) Brick Works is enjoying a capacity season this year. The amount of common-brick which will have been made since last spring will come close to fifteen million before the plant shuts down for the winter. This company has just started to make deliveries for the two new wings of the San Francisco County Hospital, a job calling for three and a half million brick. It has also contracted to deliver two million brick for the new Crockett Sugar Refinery to be erected at Crockett, Cal., and a large quantity to be used in the erection of the new plant for the Columbia Steel Works at Pittsburg, Cal. Another large order to be filled is that for the new buildings of the Stauffer Chemical Company at Berkeley, Cal.

Colorado

Both the Building Block and Tile Company and the Diamond Fire Brick Company recently took space in an ex-

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

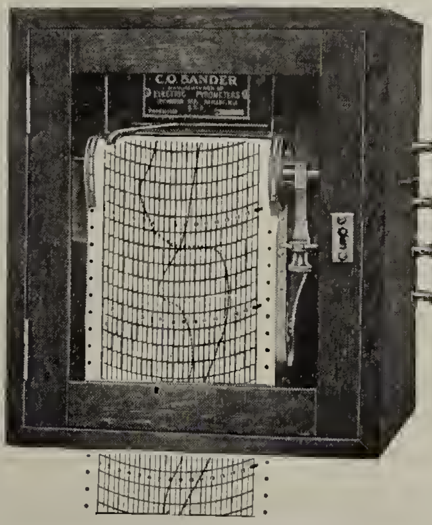
Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction. Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.

Do You Guess



at the time of day, or—glance at your watch? Of course you use the old reliable timepiece? Yet it is infinitely more difficult to guess temperatures than time. The Sander is a reliable pyrometer, it eliminates the necessity for guessing at heats. Investigate.

The Sander Instrument Co.
136 19th Ave. Irvington, N. J.

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois

PERFORATED METAL SCREENS

As required for
BRICK
MAKERS
USES.

PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
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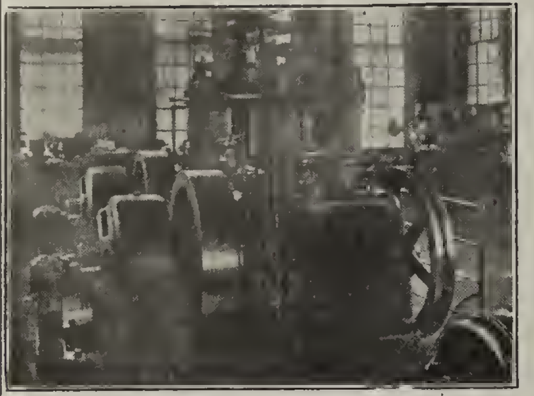


consisting of

¶ 2 Rathbun-Jones two-cylinder Vertical Gas Engines, direct connected to—

¶ 2 General Electric D. C. Generators, 200 amperes 250 volt 300 r.p.m.

¶ 1 Complete switchboard

FOR IMMEDIATE DELIVERY.

Can be seen in operation. Also

¶ 30 D. C. Motors and 4 D. C. Generators—full particulars upon request.

¶ Reason for Sale: Plant extensions and changes in Power distribution.

WIRE OR WRITE.

The HILL CLUTCH CO., **Cleveland, Ohio**

Daniel Webster and Abraham Lincoln could have found plenty of legitimate excuses for wasted lives if they had been of that type—but they rose above the crowd because they forgot their obstacles and educated themselves by reading at odd moments.

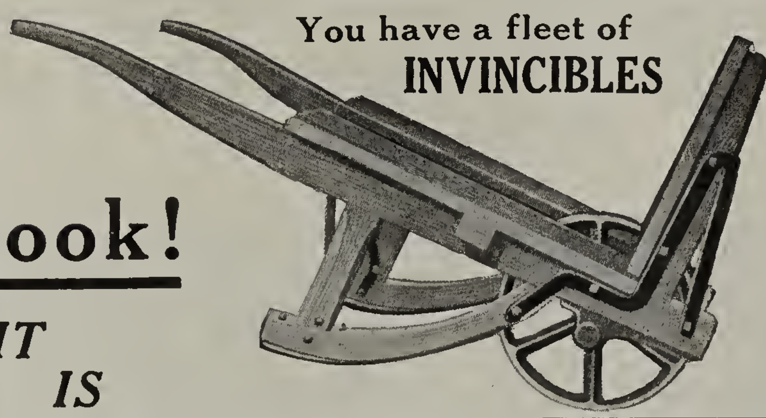
What are *you* doing to make your future more secure ?

Refer to page 664—a suggestion is there that will appeal to "go-ahead" men.

***But*—You Can't Do It!**

You can't get the kilns unloaded on time—You can't prevent accumulated demurrage on cars—You can't have satisfied hustling wheelers—

UNLESS



IT IS BALANCED

The axle is under the load—NOT at one end of it. It slides—down the runway—and the hind legs don't rip and tear.

It Rides Its Load

THE TORONTO FOUNDRY AND MACHINE CO.
TORONTO, OHIO

hibit of goods manufactured in Canon City, Colo., displaying their products of burned clay in the windows of the chamber of commerce rooms in the postoffice block.

Connecticut

A large brick drier, two hundred feet long and fifty feet wide, is being built at the plant of the Donnelly Brick Company, New Britain, Conn.

About fifty men narrowly escaped death when a large boarding house on the yard of the Shares Brick Company, New Haven, Conn., burned to the ground October 2nd. According to F. I. Shares, proprietor of the plant, the damage will amount to about $5,000.

Delaware

The Whitman-Krewson Clay Products Company is the name of a newly incorporated concern at Wilmington, Del., which has a capital stock of $200,000.

Georgia

The manufacture of hollow building tile on a large scale has recently been undertaken by the Georgia-Carolina Brick Company of Augusta, Ga. The high quality of the clay available assures the production of a first-class product for which a tremendous demand already exists. Partition tile, main wall tile, flue lining and a variety of fireproofing materials will be made. Due to the advantageous shipping facilities of Augusta, it is planned to "export" a large portion of the tile manufactured to the surrounding territory.

Idaho

Charles Henderson of Butte, Mont., is said to be interested in locating a brick plant at Buhl, Idaho. Mr. Henderson spent several weeks in Buhl recently and was impressed with the building activity of that town. He intends to further investigate the brickmaking possibilities of the clay to be found in the locality, with the intention of building a plant at that point if the results of his investigation are favorable.

Illinois

F. E. Danley, a contractor of Aurora, Ill., has discovered a large deposit of fire-clay on the outskirts of that city, and is shipping several carloads a week to South Chicago (Ill.) and Gary (Ind.) steel plants for use in their furnaces and cupolas.

The little city of Mounds, Ill., furnishes an excellent example of paving progressiveness, it having recently let a contract for paving with brick its five hundred feet of main thorofare. The Murphysboro (Ill.) Paving Brick Company is supplying the brick to be used in this job.

The plant of the National Drain Tile Company, Streator, Ill., has temporarily ceased operations owing to the necessity of making many repairs and improvements. J. F. Morris, manager, is unable to predict when the plant will again be operated. It is also said that employes of this company have formed a union, for which they are seeking recognition.

Fire, supposed to have originated from a kiln being burned, caused damage to the extent of $35,000 or $40,000 on the Grant Park (Ill.) plant of the Illinois Brick Company recently. Besides destroying seven hundred feet of the wooden kiln sheds, the roof of both the engine room and the twenty-nine track drier, and four box cars, the fire caused great damage to the electrical apparatus, the machinery and other devices used about the plant. Many of the oil pipes, carrying the fuel used in burning, bursted during the fire, feeding the flames that had already gained considerable headway. Fortunately, the company had contemplated rebuilding the plant in the near future but, were it not for this fact, the loss would have been considered irreparable.

The large, new paving-brick plant of the Streator (Ill.) Clay Manufacturing Company was placed in operation on October 4th. While as yet the full capacity is not being attempted, within a month it will be doing its best to raise the paving-brick output of Illinois several thousand a day. Designed along the most modern lines and using electricity for power thruout, the new plant is considered to be one of the best of its kind in the state. It will get its shale from a deposit near the plant, which is underlaid with a fifty-six foot vein of coal, some of which is already accessible. It is said that when the motors of the new plant are started on a full-time basis, the Streator Clay Manufacturing Company will use about as much electricity as all of the other patrons of the Public Service Company combined.

Indiana

The Ris-Clay Brick Company of Michigan City, Ind., will supply the brick for the inside work on the new Trust Company building that is being erected in that city. About 200,000 brick will be used.

The Whiteland (Ind.) Tile Company has filed incorporation papers with the secretary of state to engage in the manufacture of brick and tile. The capital stock is placed at $25,000. The incorporators are William J. Wright, R. T. Ditmers, and J. S. Wright.

Denton C. McFadden, receiver for the Ridgeville (Ind.) Tile and Brick Company, appeared in open court the last week in September and asked for authority to contract an indebtedness of $1,000 with which to carry on the business of the company. The court granted the request. Mr. McFadden said that he believed the plant could be made a paying investment.

The Standard Brick Manufacturing Company of Evansville, Ind., which has an office and display rooms in the Furniture block, that city, furnished all of the granite-flushed, impervious brick for the face, and the shale wire-cut impervious brick for all interior work of the newly constructed Old State Bank building in Evansville. The "Rugby" brick, manufactured by this company, has gained great popularity, many buildings having been erected in Evansville and vicinity recently of that particular product. Just now, the company is furnishing "Rugby" brick for four new church buildings in the surrounding territory and is filling a large order for a Chicago concern.

Since last Spring the capacity of the Terre Haute (Ind.) Vitrified Brick Company, of which "Jim" Hoskins is general manager, has been doubled by an entirely new arrangement of the machinery and several additional pieces of equipment, among which is an automatic clay feeder that is giving excellent results. A large storage bin, with a capacity of two days' run has also been added. It is the hope of this company to have the former capacity of the plant trebled by next spring and, in pursuance of this plan, eight tunnels are being added to the drier, giving in all twenty-eight tunnels. In order to make this possible, two kilns at the end of the drier are being torn down and replaced by two new ones at a different point on the plant. At the present time every brick on the yard is said to be sold, but the scarcity of cars, which seems to be acute in that city, has interfered with their shipment.

"NATCO'S" Way is to get the clay for their famous Hollow-Tile with Marion Steam Shovels. "Natco" has had plenty of opportunities for testing "Marions." The first purchase was made many years ago; now they have half-a-dozen "Marions."

Low Operating Cost, Large Capacity, Few Repairs Needed

are some of the reasons this customer has given for making "Marions" his choice. Yet there's nothing "special" about the Shovels we make for "Natco."

You might find it profitable to do *your* digging with a "Marion," too. Why not write us now, without obligation, for particulars?

Marion

We Make Excavating Machinery of Every Description

Branches:
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THE MARION STEAM SHOVEL COMPANY
Established 1884 MARION, OHIO
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WHO PAYS?

for the waste of time and fuel at your kilns **--YOU.**

But **YOU** can stop this waste by installing **HOOK'S LATEST IMPROVED PATENTED UP** and **DOWN DRAFT** uniform clay burning **SYSTEM.**

GUARANTEED

Can be built into old or new kilns at a moderate cost.

MR. C. HOOK is associated with this company and **WE** own and control all of his latest improvements in kilns, including his

GRATELESS FURNACE DRY KILN.

It's worth investigating. Let us "Tell You" more about it.

OHIO KILN COMPANY
Main Office VIGO, OHIO

Notice of Removal

Owing to the greatly
increasing demand for

THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

we have been compelled to seek larger quarters for the manufacture of these popular instruments.

*Address After November
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**3336 Lancaster Avenue,
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Better service than ever will thus be insured to our rapidly growing list of customers.

Thwing Instrument Co.
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The
House
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600
Rooms
400
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IN THE HEART OF THINGS

Hotel Martinique
Broadway, 32d St., New York

125 pleasant rooms, with private bath, facing large, open court
$2.50 Per Day

157 excellent rooms, with private bath, facing street, southern exposure
$3.00 Per Day

Also attractive rooms from $1.50.

The restaurant prices are most moderate. Equally convenient for amusements, shopping or business. One block from Penna. Station.

Many improvements are being made on the American plant of the Vigo-American Clay Company, Terre Haute, Ind. To its continuous gas-fired chamber kiln, reputed to be the second largest of its kind in the United States, are being added ten more chambers which will increase the capacity of the plant thirty-three per cent. A stack 125 feet high is being built of chimney-tile made at the plant, for the company's boilers. F. R. Hale is the general manager of this company, while C. W. Flagg is superintendent of the American plant. Mr. Hale also reports improvements being made on the Vigo plant, among which is the installation of a new waste-heat drier. While the drier formerly in use was of the waste-heat type, many of the kilns on the yards were not connected to it. When the present work is finished, however, the heat of twenty kilns will be utilized in the drier. Both of the company's plants are located in West Terre Haute.

Iowa

The Oskaloosa (Ia.) Vitrified Brick Company has, in addition to many other improvements, erected a large cement reservoir with a capacity of 16,000 gallons. The tank is built on a high elevation, thus giving considerable pressure to the water flow, and is kept filled from deep wells.

The Grinnell (Ia.) Brick and Tile Company, which was sold at public auction on September 30, is reported to have brought a total of $28,650. The buyers of the property are Grant Ramsey, H. W. Spaulding, W. F. Vogt, T. J. Bray, J. T. Lyman, Paul Essler, C. A. Smith and R. G. Coutts. The new owners contemplate changing the name of the company.

Kentucky

At Ashland, Ky., the State Fire Marshal's department has issued orders that fifty frame structures in the central part of this rapidly growing city must be torn down within thirty days. Not a brick building in the city was condemned.

Louisville brick manufacturers and dealers are looking forward with interest to a statement from the Louisville Industrial Foundation as to the character of facing material which will be used in the auditorium to be erected in that city next spring. D. X. Murphy and Brother, architects, have made tentative sketches which will be submitted shortly to the directors and, it is believed, that a decision will be reached before long. Peter Lee Atherton, who has been prominent in the project, recently made a statement that the money subscribed for the auditorium would not begin to build the structure contemplated. He intimated that the association would probably have to ask for more money.

Bids have been submitted by a number of Louisville brick dealers to supply the facing material for the Southern Baptist Training School or dormitories, which are to be erected at Preston street and Broadway, Louisville, at a cost of $150,000. According to the call for bids, the supply men are figuring several ways, face-brick, terra cotta, a combination of face-brick and terra cotta and cut stone. There is a good deal of uncertainty as to what the outcome will be, altho, quality considered, the clay products representatives are not afraid of taking their chances on the job. Several big, old houses are being torn down on the corner for the site and, consequently, the market is at present flooded with old brick.

The P. Bannon Pipe Company, Louisville, Ky., is using two large motor trucks to make deliveries of hollow-tile and face-brick to the Sacred Heart Convent, east of the city, where a large addition is being erected. This is an all-hollow-tile wall structure, consequently a large quantity of that material is being called for. A. P. McDonald, salesmanager for the company, has returned to his office after a week's enforced absence. He contracted a cold several days ago, taking a week off to get rid of it. All of the company's plants are busy at this time, altho the outlook for an adequate coal supply is somewhat uncertain. It has some good "leads," however, and the prospects for keeping up the supply are excellent.

The Southern Brick and Tile Company is one of the few Louisville companies that keeps up with the building permits issued at the City Building Inspector's office. Those who obtain these permits to build or make repairs get a circular very promptly from this company, which is attractively typed and in the form of a letter. A blotter is also used. There is "meat" in this letter for the non-technical recipient. The following extract gives some reasons for the claims made in behalf of the company's product:

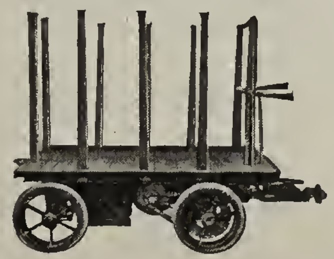
"When our brick are made the clay is mixed with water, then well tempered by machinery and pressed into sanded molds. The architect will always prefer a brick made by this process to any others, as it will best stand the test of time."

Andrew Hillenbrand, president of the Hillenbrand Brick Manufacturing Company, Louisville, Ky., reports that the outlook with his company is very good. Orders for half a million face-brick are on the books and the plant is operating steadily and to capacity. The company makes a dry-pressed brick, selecting the face-brick stock at the time the kilns are emptied. A double advantage was gained by the company when Oscar Hillenbrand went into the retail coal business as a winter activity. The company in which he is interested lets contracts early in the summer for coal for its yard supply, which is more than sufficient to insure the brick plant being provided with fuel, while, with a shortage threatened in the domestic supply in Louisville, the retail coal trade has opened up satisfactorily.

The best delivery that the Louisville (Ky.) Fire Brick Company is able to promise on new business at this time is ninety days, according to J. H. Bell, salesmanager. The company, however, is doing everything in its power to get the brick out of the kilns and shipped. At the rate sales have been mounting up for the first two weeks, he stated, October promises to rank as the banner month. Mr. Bell makes mention of one order, involving the relining of an iron furnace, that the company had to practically decline because it could not handle it quickly. Between now and the first of November the addition to the company's plant at Grahn, Ky., should be in operation. This will add 25,000 brick a day to the company's output and, if cars are easier to get at that time, will help greatly in handling business.

The car shortage is becoming very acute in and around Louisville, Ky., affecting not only the shipments of burned clay materials but also interfering with the necessary supply of coal being received at the plants. At least one Louisville manufacturer has been obliged to hunt for a new available supply of coal, because of the failure of a coal contract. Practically all of the manufacturers are protected by contracts but the deliveries upon them are very uncertain, since coal operators are now more than a month behind on their shipments. The shortage of cars in regard to the shipment of finished materials is tending to put those manufacturers operating motor trucks to the front, since they are usually in position to promise immediate deliveries, within a certain radius, by truck.

KOPPEL
Complete Industrial Railways
CLAY and DRYER CARS
Designed and built by specialists. Cars, Portable Track, Rails, Steel Ties, Switches, Frogs, Turntables, shipped from stock.
THE ELECTROMOBILE TRADE MARK INDUSTRIAL TRUCK



Mechanically and financially the Electromobile Electrically driven industrial truck is the most efficient of its type on the market. Write for catalogs on Industrial Railway Equipment and Electromobile Trucks.
PLANT KOPPEL, PA.
ORENSTEIN-ARTHUR KOPPEL CO.
Branches All Over the World
SALES OFFICES: New York Chicago Pittsburgh San Francisco

You won't have to worry about competition if you treat your clay with
R. H. Precipitated Carbonate of Barytes
You can safely guarantee that your brick will be
Scum-Proof
You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.
But insist on the R. H. BRAND—it's dependable.
We have a complete line of high grade chemicals for the clay industry.
The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. East Liverpool, O. Philadelphia, Pa.
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The Standard Brick Drier

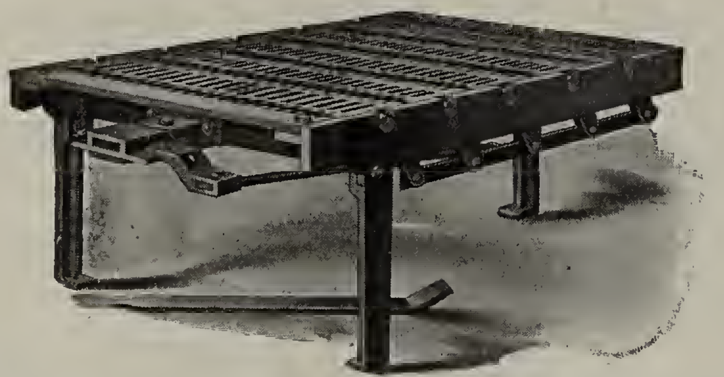
is always sold with a specific guaranty covering the results it is expected to produce.

Under these stern conditions it has been making good, on all varieties of clays, for 30 years.

If you are thinking of making a change in your drying arrangements, write us and we will tell you exactly what we will guarantee The Standard Drier to do in *your* case.

Securing this information will not put you under the slightest obligation to buy. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

Leo M. Parsons of the Tyler Building Supply Company, Louisville, Ky., reports that, except for the car shortage, everything is lovely. Only the stringency in shipping equipment is a great deal of a nuisance and is causing delays in deliveries to several buildings for which the company is furnishing material. Orders taken now are seldom for delivery within thirty days. One job the company is supplying takes a Huntingburg (Ind.) brick, made about fifty miles north of Louisville. One car of a series was due in Louisville about the first of October, and from then until near the middle of the month the Louisville concern was in telephone communication with the plant at least once a day. Finally, word was received that the car was loaded, the delay being due to fact that the manufacturer was getting less than half of the number of cars he needed.

James T. Howington, salesmanager for the Coral Ridge Clay Products Company, Louisville, Ky., has worked out an interesting solution to at least a part of the car shortage problem. The Louisville and Nashville railroad covers the state with cattle cars about once a week, the bulk of the receipts at the local stockyards being on Friday and Saturday. When the cattle cars are emptied, it is not necessary to hurry them back to the country sidings and so they are loaned for over Sunday and the first two or three days of the week to concerns such as the Coral Ridge Company with short hauls to be made into the city. They can then be unloaded and returned to the railroad in time to take care of the usual volume of live stock shipments. As to regulars for long hauls, however, the Coral Ridge company is taking its chances with the other shippers in that section. Speaking of some twenty-four cars due to be shipped at once, a few days ago, Mr. Howington thought that the company would get cars enough for about half. The company's plant is extremely busy and there are some large tile orders on the books.

Michigan

J. J. Haarer, superintendent of the Wolverine Brick Company of Corruna, Mich., reports that his concern is many thousand brick behind in its orders, despite the fact that the plant has been operating to capacity all summer. It has been necessary to stop taking orders for the present, and it is very possible that the plant will be enlarged next year.

Kane Brothers, for many years owners and operators of the brick and tile plant at Mount Pleasant, Mich., have sold out their interests to a new corporation which has been formed, to be known, it is thought, as the Mount Pleasant Brick and Tile Company. Dr. C. D. Pullen, Fred L. Klunzinger, S. E. Francis, and B. M. Gould, the new owners, are now in possession of the property and plan extensive improvements, which will greatly increase the capacity of the plant.

Missouri

The Liberal (Mo.) Impervious Brick Company was recently incorporated with a capital stock of $600,000. C. W. Hurtgen, L. G. Morgan, and Roy Todd are the incorporators of the new concern and will erect a plant at that point.

Employes of the W. S. Dickey Clay Manufacturing Company's plant at Deepwater, Mo., were granted a voluntary increase of ten cents a day recently. This is the second increase given the men since the first of the year.

Montana

Operations have commenced at the plant of the Roundup (Mont.) Brick and Tile Company, brick being manufactured at the rate of 20,000 daily. Indications point to the continuance of operations at the new plant since the machinery, which has been in place for a long time, has proved very satisfactory. A dry-pressed brick is being manufactured at this plant.

New Jersey

While nothing definite has been learned, it is understood that another clayworking plant will soon be located near Perth Amboy, N. J.

The American Hollow Tile Company is the name of a new concern incorporated with a capital stock of $25,000 at New Brunswick, N. J., by William J. Lyle, Robert W. Lyle and Charles Kimball, all of New Brunswick.

New York

Organized for the purpose of manufacturing brick and tile, and dealing in stocks and bonds, the Financing Corporation of Buffalo has been incorporated with a capital stock of $200,000 by T. D. Towell, H. R. Sturtevant and M. C. Spratt, all of Buffalo, N. Y.

The Buffalo (N. Y.) Clay Products Company has recently been incorporated with a capital stock of $10,000 for the purpose of manufacturing pottery, brick, tile and earthenware. The incorporators of this new concern are D. J. O'Neil, K. C. Knight and E. F. Knight, all of 581 Prospect avenue, Buffalo.

North Carolina

Incorporated with a capital stock of $40,000, the Farmville (N. C.) Brick and Ice Company is preparing to build a plant at that point for the manufacture of brick. Of the $40,000, about $6,000 has already been paid in and shares at $100 each are being distributed by the company.

Ohio

As evidence of the activity being enjoyed by Ohio brickmaking plants comes the information that the McArthur (Ohio) Brick Company shipped more than 1,100,000 brick during the first half of September.

The Ironclay Brick Company, which has general offices in the Ruggery building, Columbus, and a plant at Shawnee, Ohio, is having a good run of orders for its face-brick. Prospects for fall business are considered fairly good by the officials of the company.

Business never was better for sewer-pipe and similar clay products, according to H. H. Camp, head of the Camp Conduit Company, Cleveland. The only difficulty this branch of the business has to contend with is the scarcity of good labor.

The Zanesville (Ohio) Clay Novelty Company has been incorporated with a capital of $10,000, to make name plates out of clay. The incorporators are Raleigh E. French, Henry Nicholson, Clarence Carter, Thad Thompson and H. B. Westenbarger.

The Ludowici Celadon Roofing Tile Company of New Lexington, Ohio, is making a number of extensive improvements and betterments at its plant, which manufactures roofing-tile exclusively. The building of a new kiln will be rushed to completion. The manager has advertised for fifty additional men to increase the output of the plant.

H. F. White, manager of the Hocking Valley Products Company's brick department, which concern operates a plant located near Nelsonville, Ohio, was called to the plant recently for an inspection. The concern is having a nice run of business, with bright prospects for the remainder of the year. About the only drawback is car shortage, which is constantly growing worse.

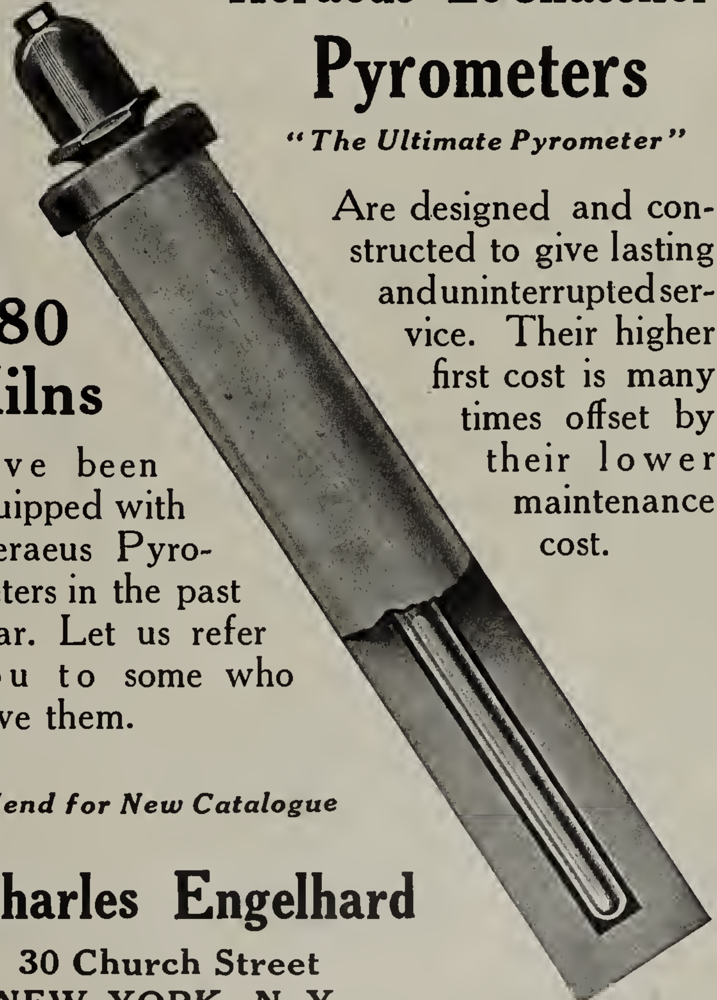
Picture This Truck

in your plant during this hot summer and imagine how much easier it is to move the ware at three times the speed in lots like this.

Elwell-Parker Self-Loading Trucks

make the work easier and do it at less expense. Get our opinion as to what can be accomplished in your plant.

The Elwell-Parker Electric Co.
Cleveland



Heraeus LeChatelier Pyrometers

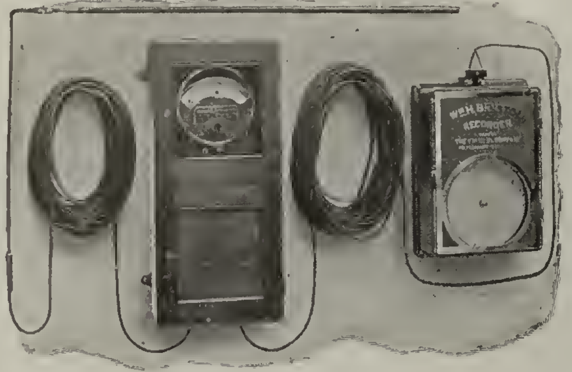
"The Ultimate Pyrometer"

Are designed and constructed to give lasting and uninterrupted service. Their higher first cost is many times offset by their lower maintenance cost.

180 Kilns have been equipped with Heraeus Pyrometers in the past year. Let us refer you to some who have them.

Send for New Catalogue

Charles Engelhard
30 Church Street
NEW YORK, N. Y.



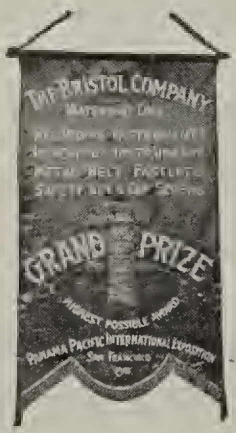
Bristol's Pyrometer Installation

For many practical applications of electric pyrometers it is desirable to have the furnace temperature indicated at the furnace operator's post of duty, and a recorder installed in the office of the superintendent. This combination indicating and recording unit of Bristol Pyrometers, as shown above provides for both these requirements. Highly recommended for brick kilns.

Write for Bulletin 205

THE BRISTOL CO.
WATERBURY, CONN.

BRANCH OFFICES
BOSTON NEW YORK CHICAGO
PITTSBURGH SAN FRANCISCO



HETTRICK Red Stitched Canvas Belting

in the PAVING BRICK plant is the one best belt that is dependable; it drives the hard-pulling pans, pugs and augers without stretch or slip — and it almost lasts forever. It is used on heavy duty machines because it is the best.

THE HETTRICK MFG. CO.
TOLEDO, OHIO

A complete reorganization of the New Lexington (Ohio) Clay Manufacturing company has been effected and the plant is now in complete operation. The new management at the helm consists of A. Garlinger, president; J. O. Cullen, secretary and treasurer; W. H. Geis, vice-president and general manager, and Charles A. Smith, general superintendent. The concern makes rough-face face-brick exclusively. It was formerly financed by Daniel McKeever of Columbus. The plant has not been operated for some time.

Ohio manufacturers of clay products are having considerable trouble with a shortage of labor, practically every plant in the Hocking Valley section reporting a lack of both skilled and unskilled help. This is due not only to booming industrial conditions but also to the fact that coal mining has become so prosperous that it has attracted many of the former clay plant employes to the mines. There is also a marked shortage of cars, which is interfering with shipments.

H. S. Gaines, as the chief executive officer of the Ohio Builders' Supply Association, has opened an office on the eighth floor of the Columbus Savings and Trust building, Columbus, Ohio, and is planning an aggressive campaign for getting the dealers in building materials closer together. He is working along the lines laid down by E. N. Hurley of the Federal Trade Commission, seeking to show the members of the association the cost of doing business so that they may know just where they stand. He also is showing the value of the interchange of credit information among the members, so that "deadbeats" may be eliminated.

Charles F. Harrison, secretary of the Gaddis-Harrison Company, Columbus, Ohio, dealers in all kinds of clay products, in discussing market conditions recently, said, "We are experiencing a good demand, the only drawback being a lack of cars in order to make prompt shipments. The demand is pretty evenly balanced in all lines. We are unable to secure sufficient hollow-tile to supply the demand and the concern is far back on its orders. There is a steady call for face-brick and there are quite a few good prospects in sight for the fall." Mr. Harrison says that the common-brick plants in that vicinity are feeling the shortage of labor worse than the face-brick plants.

Oregon

After deciding to shut down for the winter, Manager A. H. Horn of the Bend (Ore.) Brick and Lumber Company, has been forced to operate at a greater capacity than ever on account of the demand for brick for several new buildings in that city.

Pennsylvania

Members of the brick industry in the city of Philadelphia are experiencing considerable difficulty, at the present time, in obtaining sufficient skilled and unskilled labor. It is estimated that only from fifty to sixty per cent. of the capacity of the brick yards in this vicinity is being reached.

The Hazelton (Pa.) Brick Company's plant is proving a great success, many large orders for brick being on hand. Needless to say, the company is maintaining capacity operations. Many of the brick manufactured are being used in Hazelton, while a shipping trade is also under development.

With unskilled labor at a premium, York (Pa.) brickmakers are experiencing great difficulty in filling the heavy orders that are on hand. The Spring Garden Brick Company, Grothe's Brick Works and D. F. Stauffer Company of that point, altho flooded with orders, are unable to handle them, all due to the reduced capacities of their plants.

SEE "LAST WORD" *in* BRICK ROAD BUILDING

(*Continued from page* 693)

Maker," who told a string of funny stories and drew some apt illustrations of the way in which important highways annihilate distances. He asserted that any farmer living on a paved road within eleven miles of the business center was really closer to town from the standpoint of time than is the average citizen of a large town like Chicago, who must encounter innumerable delays and travel considerable distance in going from point to point in the city.

Spencer F. Ball, president of the Terre Haute chamber of commerce, extended the city's welcome. He felt confident of the good intentions embodied in brick, because, he said, Hell could not be paved successfully with a material better calculated to withstand fire and rough treatment.

Clinton Cowan, highway commissioner of Ohio, voiced a liberal attitude toward all of the various efforts to solve the problems of highway construction, believing that widespread encouragement would do most in developing greater and greater excellence.

An account of Illinois economy in the matter of concrete base was given by W. W. Marr, chief engineer of the Illinois highway department. He expressed the belief that monolithic construction opened the way for the use of bases of as little as one inch in thickness, or less with rigidity equal to that obtained with greater expenditure of material under old methods. In other words, Illinois is working for the maximum mileage of brick roads consistent with durability.

Prof. Leonard S. Smith of the University of Wisconsin took the college term—team play—for his theme. He pointed out the advantage of co-operation between men of varied pursuits whose objects, upon analysis, prove to be closely related. Team play between the public, the official, the engineer, the contractor and the workman is requisite to a thoro-going highway program, he declared. He paid a fervent tribute to the breadth of policy of the paving-brick association and Secretary Blair for adopting a policy that was truly educational, rather than merely promotional.

Prof. Ira O. Baker, professor of civil engineering at the University of Illinois, likewise complimented the association upon its disinterested measures in the direction of better construction and its candor toward highway questions. He felt certain that all present had been benefited by the oportunities of the day.

The program was closed by President C. C. Blair, who thanked his honored guests for their words of tribute and voiced the pleasure of his association, in no uncertain terms, over the success of the occasion and the gratifying interest shown by the engineering profession.

DEMONSTRATION HAD PRACTICAL VALUE

Thus came to an end a perfect day—the close of twenty-four hours in which something of practical value was given to those interested in good roads, whose friendship for brick is a big asset to the maker of that material. But not only did highway engineers gain something from this school of instruction under the blue canopy of heaven. Everyone who attended the convention and up until October 6th had never seen a monolithic brick road under construction, had no excuse, after leaving Paris, for not knowing something tangible about this most promising type of road. The idea of

Jenkins Bros. Valves

Specifying Jenkins Bros. means freedom from valve troubles.

Means getting the original Jenkins renewable disc valves, with body, trimmings and all working parts strong and well proportioned. Means getting valves made of a superior grade of new steam metal—no scrap or yellow brass.

Specifying Jenkins Bros. also means getting valves which seldom wear out in service. All parts are made to gauge and are interchangeable, and when necessary repair parts can be obtained through your dealer at nominal cost. Most of the wear comes on the disc, which can be replaced easily, quickly and inexpensively.

Look for the trade mark and specify the name in full—Jenkins Bros.

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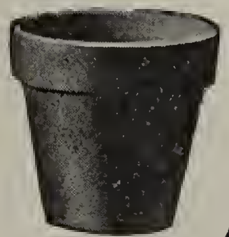


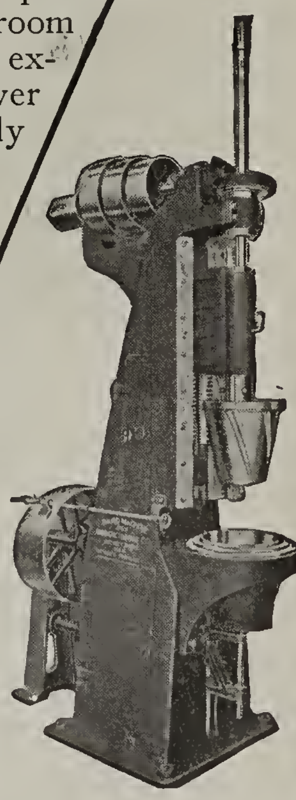
A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

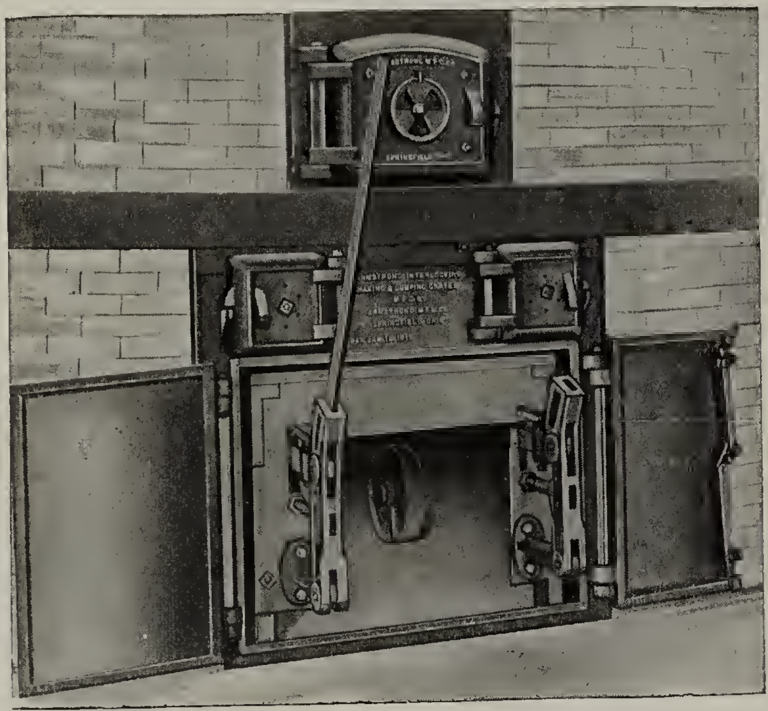


"Sirocco" Motor-driven Multibade Fan at plant of Ashland (Ky.) Fire Brick Co.

"We are very much pleased with the two 'Sirocco' fans purchased of you something over a year ago. They have been in constant operation, running 24 hours a day since that time and have never given us slightest trouble, nor have we had to stop them for any mechanical cause connected with the fans.

"If we had any more fans to buy we feel very much inclined to think we would buy your fans without any competitive conditions."
(Signed) Ashland Fire Brick Co.

AMERICAN BLOWER COMPANY
DETROIT MICHIGAN
BRANCHES EVERYWHERE


Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

teaching highway engineers and those interested the actual value of a burned clay armored highway by actual demonstration has been fostered by the National Paving Brick Manufacturers' Association and has no doubt proved a very valuable idea.

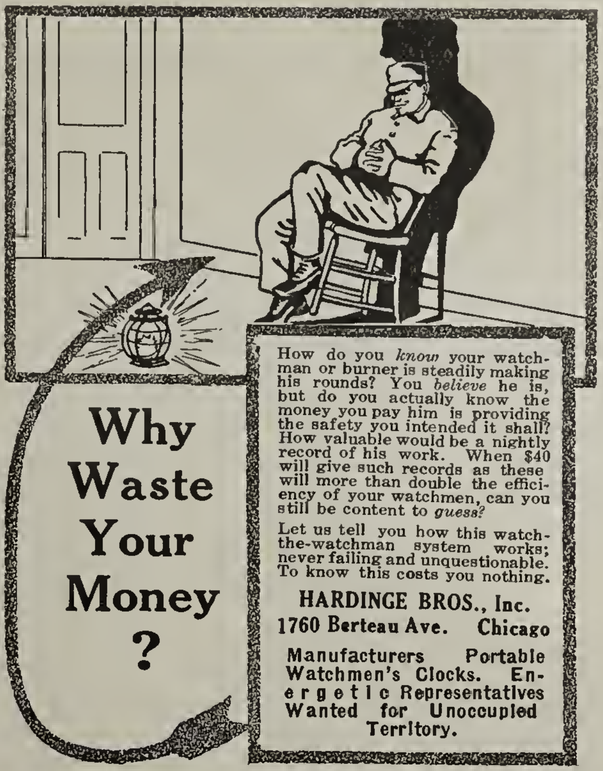
A WORD IN PRAISE OF THE HOSTS

No account of this convention would be complete without saying something in appreciation of the warm hospitality and generosity of "Jim" Hoskins and W. T. Blackburn, the former acting as host in Terre Haute and the latter at Paris. At every point, where information was desired concerning the city and its environments and where visitors were to be entertained, Hoskins was on the job with his smiling countenance and interesting stories, which have won him many friends in the past.

Mr. Blackburn's fame has already spread thru the progressive little city of Paris to a nation-wide reputation as being the father of a more advanced method of building monolithic pavements. His hospitality was generous and far reaching. The entire program at Paris hinged upon his personality and, like the wonderful brick roads, the construction of which he has supervised, the entertainment of the visitors at Paris was something of which he may well be proud. In all, 221 persons registered at the convention headquarters, of which the following is a complete list:

1. Will P. Blair—Secretary, N. P. B. M. A., Cleveland, Ohio.
2. H. H. Macdonald—Assistant Secretary, N. P. B. M. A., Cleveland, Ohio.
3. C. C. Blair—President, N. P. B. M. A., Youngstown, Ohio.
4. Charles J. Deckman—The Medal Paving Brick Co., Cleveland, O.
5. E. G. Zorn—"Brick and Clay Record," Chicago, Ill.
6. Leo. J. Sheridan—"Brick and Clay Record," Chicago, Ill.
7. John L. Rice—Ohio Sewer Pipe Manufacturers Association, Akron, Ohio.
8. W. R. Barnhart—Medal Paving Brick Co., Wooster, Ohio.
9. G. E. Carlyle—Carlyle Paving Brick Co., Portsmouth, Ohio.
10. Spencer M. Duty—The Medal Paving Brick Co., Cleveland, Ohio.
11. Floyd W. Allen—Consulting Engineer, Denny-Renton Clay and Coal Co., Seattle, Wash.
12. F. R. Carter—Peoria, Ill.
13. R. L. McCormick—Professor Mechanics, Rose Polytechnic Institute, Terre Haute, Ind.
14. F. A. Francois—Mathews Gravity Carrier Co., Ellwood City, Pa.
15. S. T. Costello—California Paving Brick Co., San Francisco, Cal.
16. William R. Schoonover—Indianapolis Paving Brick Publicity Bureau, Indianapolis, Ind.
17. W. J. Whitworth—Bessemer Limestone Co., Youngstown, Ohio.
18. E. H. Clifford—Chamber of Commerce, Terre Haute, Ind.
19. E. F. Deckert—Main Belting Company, Chicago, Ill.
20. Frank A. Kattman—Terre Haute, Ind.
21. Eb. Rodgers—Alton Brick Co., Alton, Ill.
22. John Laylin—Columbus, Ohio.
23. J. C. Kline—J. Kline Brick Co., Cleveland, Ohio.
24. Leon C. Herrick—Norwalk, Ohio.
25. S. W. Hume—"Municipal Journal," New York City.
26. William T. Schepflin—Fremont, Ohio.
27. J. C. Overmyer—Civil Engineer, Fremont, Ohio.
28. S. W. Snively—Managing Editor, "Star," Terre Haute, Ind.
29. Leonard S. Smith—Consulting Engineer, Madison, Wis.
30. Otto C. Muth—Carlyle Paving Brick Co., Cincinnati, Ohio.
31. Maurice B. Greenough—Case School of Applied Science, Cleveland, Ohio.
32. J. B. Wilcox—Alliance Clay Product Co., Alliance, Ohio.
33. D. R. Potter—Thornton Fire Brick Co., Clarksburg, W. Va.
34. A. J. Fixmer—Paving Engineer, Chicago, Ill.
35. W. M. Hansen—The Paving Brick Publicity Bureau, Chicago, Ill.
36. F. C. Mahoney—Brown Instrument Company, Chicago, Ill.
37. L. Haigh—American Clay Machinery Co., Bucyrus, Ohio.
38. H. G. Lehrbach—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
39. F. R. Kanengeiser—Bessemer Limestone Co., Youngstown, Ohio.
40. James J. Daugherty—Terre Haute, Ind.
41. George Olsen—Terre Haute, Ind.
42. William Steeg—Terre Haute, Ind.
43. C. A. Halley—Good Roads, Chicago, Ill.
44. James T. Voshell—Office of Public Roads, Washington, D. C.
45. C. C. Barr—Barr Clay Company, Streator, Ill.

46. H. S. Renkert—Metropolitan Paving Brick Co., Canton, Ohio.
47. J. G. Barbour—Metropolitan Paving Brick Co., Canton, Ohio.
48. R. Kunkel—Safety Director, Canton, Ohio.
49. G. McClaskey—Director of Service, Canton, Ohio.
50. G. H. Reiter—Illinois Paving Brick Publicity Bureau, Chicago, Ill.
51. M. B. Woosley—Galesburg, Ill.
52. Milton Deatherage—Galesburg, Ill.
53. A. C. Harvey—Galesburg, Ill.
54. T. L. O'Brien—Galesburg, Ill.
55. Walter Whipple—Galesburg, Ill.
56. John A. Johnson—Galesburg, Ill.
57. C. E. Sherman—Galesburg, Ill.
58. W. A. Meddick—Lakewood Engineering Co., Cleveland, Ohio.
59. A. L. Bowers—The Burton-Townsend Co., Zanesville, Ohio.
60. R. H. Strait—County Engineer, Zanesville, Ohio.
61. Fred Rush—Board of Works, Terre Haute, Ind.
62. John B. Walsh—Board of Works, Terre Haute, Ind.
63. C. E. Blood—Board of Works, Terre Haute, Ind.
64. J. M. Hoskins—Terre Haute Vitrified Brick Co., Terre Haute, Ind.
65. James I. Tucker—University of Oklahoma, Norman, Okla.
66. Dorothy Belle Tucker—Norman, Okla.
67. James Gossow—Mayor, Terre Haute, Ind.
68. A. L. Curry—Metropolitan Paving Brick Co., Canton, Ohio.
69. H. H. Rosenberg—"Brick and Clay Record," Chicago, Ill.
70. J. L. Murphy—Nelsonville Brick Co., Nelsonville, Ohio.
71. A. M. Waters—"Terre Haute Tribune," Terre Haute, Ind.
72. Spence F. Ball—Terre Haute Chamber of Commerce, Terre Haute, Ind.
73. E. B. Schmidt—Dunn Wire-Cut-Lug Brick Co., La Porte, Ind.
74. G. M. Harbert—Clarksburg, W. Va.
75. B. F. Deardorff—Engineer, Muncie, Ind.
76. J. E. Randall—"The Clay Worker," Indianapolis, Ind.
77. H. M. Butt—Galesburg, Ill.
78. C. W. Denniston—Sterling Brick Co., Rochester, N. Y.
79. J. Francis Small—The White Company, Chicago, Ill.
80. F. L. Stowell—Sterling Brick Co., Olean, N. Y.
81. B. F. Thomas—Olean, N. Y.
82. R. C. Wallis—Bessemer Limestone Co., Youngstown, Ohio.
83. J. D. Morris—Metropolitan Paving Brick Co., Canton, Ohio.
84. M. H. Johnson—Terre Haute Vitrified Brick Co., Brazil, Ind.
85. C. M. Powell—Portland Cement Association, Chicago, Ill.
86. J. R. Rowland—Bessemer Limestone Co., Youngstown, Ohio.
87. R. W. Chapman—The White Company, Cleveland, Ohio.
88. T. B. Johnson—Pioneer Asphalt Co., Lawrenceville, Ill.
89. R. T. Stull—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
90. Miss B. Kinner—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
91. F. H. Wentworth—H. W. Johns-Manville Co., Chicago, Ill.
92. E. P. Foster—Bessemer Limestone Co., Youngstown, Ohio.
93. A. L. Hendershot—Cleveland Brick and Clay Co., Cleveland, O.
94. Wm. C. Perkins—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
95. E. A. Fisher—City Engineer, Lakewood, Ohio.
96. George E. Viquesnez—Terre Haute, Ind.
97. Frank T. Townsend—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
98. W. T. Blackburn—Dunn Wire-Cut-Lug Brick Co., Paris, Ill.
99. F. A. Churchill—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
100. J. W. Robb—Clinton Paving Brick Co., Clinton, Ind.
101. C. O. Arbogust—"Brick and Clay Record," Chicago, Ill.
102. W. C. Dickey—City Engineer, Conneaut, Ohio.
103. James R. Thomas—Standard Brick Co., Crawfordsville, Ind.
104. Herbert C. Moatz—Medal Paving Brick Co., Cleveland, Ohio.
105. George E. Martin—Purdue University, Lafayette, Ind.
106. John W. Sibley—Southern Paving Brick Manufacturers' Association, Birmingham, Ala.
107. Julius Adler—Engineer of Tests, Pennsylvania State Highway Department, Harrisburg, Pa.
108. Jesse Taylor—Editor "Better Roads," Jamestown, Ohio.
109. George D. Steele—Better Roads, Philadelphia, Pa.
110. W. A. Alsdorf—Ohio Good Roads Federation, Columbus, Ohio.
111. Paul N. Bogart—Terre Haute, Ind.
112. T. LeRoy Brown—Terre Haute, Ind.
113. James Guessnickle—N. Manchester, Ind.
114. J. P. Bell—County Surveyor, Wabash, Ind.
115. John R. Root—Terre Haute Vitrified Brick Co., Terre Haute, Ind.
116. C. H. Benjamin—Purdue University, Lafayette, Ind.
117. F. L. Manning—Peebles Paving Brick Co., Portsmouth, Ohio.
118. H. G. Meiners—City Engineer, Covington, Ky.
119. F. F. Donnelly—Commissioner of Public Works, Covington, Ky.
120. Judge J. H. Wade—Boyd County Court, Ashland, Ky.
121. Fred Gessling—City Engineer, Ashland, Ky.
122. John Harper—County Surveyor, Portsmouth, Ohio.
123. S. C. Peckus—Peebles Paving Brick Co., Portsmouth, Ohio.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How do you *know* your watchman or burner is steadily making his rounds? You *believe* he is, but do you actually know the money you pay him is providing the safety you intended it shall? How valuable would be a nightly record of his work. When $40 will give such records as these will more than double the efficiency of your watchmen, can you still be content to *guess?*

Let us tell you how this watch-the-watchman system works; never failing and unquestionable. To know this costs you nothing.

HARDINGE BROS., Inc.
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Manufacturers Portable Watchmen's Clocks. Energetic Representatives Wanted for Unoccupied Territory.

The Beighlee

"A Pyrometer with a Conscience"

Because—

in a half dozen different ways, it is built practically error proof.

You undoubtedly are acquainted by discussion or by actual use—with the usual accumulative errors in clay plant pyrometry arising from the use of base metal couples, low resistance instruments, cold junction errors, small dials, etc.

In the Beighlee these errors are impossible.

The Beighlee Pyrometer
—it is furnished with rare metal couples.
—it has an internal resistance of 1,200 ohms.
—it has a compensating device—eliminating absolutely the cold junction error.
—it has a recording dial that is 18" in diameter.

You had better get in touch with BEIGHLEE—NOW.

Beighlee Electric Company CLEVELAND, OHIO
Herman A. Holz, Hudson Terminal Bldg. New York City
Representative in New England States

Tycos
FERY RADIATION
PYROMETERS
Eliminate Guesswork from the Manufacture of All Products requiring extremely high Temperatures * * * *

We Manufacture - Thermometers and Instruments covering every Temperature requirement in Metallurgy and Chemistry

A Catalog Cheerfully Sent Upon Application

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Here's a New Book--A Useful One

STEAM POWER

By C. F. Hirshfeld, M. M. E., and
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This book is understandable throughout.

It gives a correct viewpoint with regard to the use of heat in the power plant, and supplies the tools required for the solution of power plant problems of the common sort.

Mathematical treatment of the subject has been eliminated to the greatest possible extent.

The book contains a large number of carefully chosen illustrations, which will be found especially valuable.

And anyone familiar with elementary algebra should be able to understand readily such equations as it has been deemed necessary to include.

428 *pages*, 5¼x8, 232 *figures. Cloth*, $2.00 *net.*

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124. B. V. Marshall—Terre Haute, Ind.
125. Stanley D. Knight—Ohio Quarries Co., Cleveland, Ohio.
126. Wade W. Shidler—City Engineer, Alliance, Ohio.
127. Ira O. Baker—Professor of Civil Engineering, Illinois State University, Urbana, Ill.
128. T. R. Lawson—Professor of Mechanics, Rensellaer Polytechnic Institute, Troy, N. Y.
129. Charles H. Frank—Salesmanager Nelsonville Brick Co., Columbus, Ohio.
130. C. D. Franks—Manager Portland Cement Association, Indianapolis, Ind.
131. H. T. Watts—City Engineer, Vincennes, Ind.
132. M. M. Morrow—Hocking Valley Brick Co., Columbus, Ohio.
133. Henry Maetzel—City Engineer, Columbus, Ohio.
134. T. W. Kelly—Indianapolis, Ind.
135. F. J. Cellarius—Consulting Engineer, Dayton, Ohio.
136. W. H. Lucktenberg—Hocking Valley Brick Co., Columbus, O.
137. W. H. Eagle—Assistant City Engineer, Columbus, Ohio.
138. E. L. Middleton—Barr Clay Company, Streator, Ill.
139. A. B. Hurd—County Superintendent of Woodford Co., El Paso, Ill.
140. E. E. Tratman—Editor, "Engineering News," Chicago, Ill.
141. M. DeBerard—Western Editor, "Engineering Record," Chicago, Ill.
142. George J. Schwarz—Ricketson & Schwartz, Milwaukee, Wis.
143. Fred G. Simmons—Commissioner Public Works, Milwaukee, Wis.
144. Fred Deutsche—Milwaukee, Wis.
145. Charles O. Davis—Commissioner of Streets, Milwaukee, Wis.
146. Albert Boley—Engineer, Sheboygan, Wis.
147. R. E. Karteck—Baraboo, Wis.
148. P. Connelly—Engineer, Racine, Wis.
149. J. R. Zmunt—Newburgh Brick and Clay Co., Cleveland, Ohio.
150. William Howe—John Baker, Jr., Chicago, Ill.
151. W. L. Hemplemann—John Baker, Jr., Chicago, Ill.
152. W. P. Goodman—Assistant City Engineer, Chicago Hts., Ill.
153. John McCoy—Chicago Heights, Ill.
154. George O. With—Chicago Heights, Ill.
155. Shipley—Assistant City Engineer, Cincinnati, Ohio.
156. Conway—Street Commissioner, Cincinnati, Ohio.
157. O. C. Smith—Kokomo, Ind.
158. W. H. Arnett—Secrctary Chamber of Commerce, Kokomo, Ind.
159. Frank F. Rogers—State Highway Commissioner, Lansing, Mich.
160. John J. Cox—Assistant Professor of Civil Engineering, Ann Arbor, Mich.
161. F. H. Newell—Civil Engineer, University of Illinois, Urbana, Ill.
162. James C. Travilla—Highway Commissioner, St. Louis, Mo.
163. James R. Marker—Ohio Paving Brick Manufacturers' Association, Columbus, Ohio.
164. L. R. Moran—Park-Moran Co., Okmulgee, Okla.
165. E. E. Park—Park-Moran Co., Okmulgee, Okla.
166. Harvey C. Adams—Danville Brick Co., Danville, Ill.
167. C. C. Wiley—Head of Road eDpartment, Champaign, Ill.
168. W. S. Dillan—Superintendent of Highways, Danville, Ill.
169. H. H. Edwards—Road Dept., University of Illinois, Champaign, Ill.
170.—R. P. Brawn—Road Dept., University of Illinois, Champaign, Ill.
171. M. N. Fairclo—Supt. of Highways, Champaign, Ill.
172. J. L. Long—Editor, "Road Maker," Moline, Ill.
173. J. P. Horgan—Board of Public Works, San Francisco, Cal.
174. O. W. Stoner—California Brick Company, San Francisco, Cal.
175. W. N. Logan—University of Indiana, Bloomington, Ind.
176. Frank W. Wood—Danville Brick Co., Danville, Ill.
177. R. D. Culver—
178. Walter Colyer—Albion Shale Brick Co., Albion, Ill.
179. Elmer E. Colby—Chickasha, Okla.
180. Clinton Cowen—State Highway Commission, Columbus, Ohio.
181. M. H. McCay—City Engineer, Chicago Hts., Ill.
182. F. W. Lucke—1205 Chamber of Commerce, Chicago, Ill.
183. Adolphus Cruzan—Contractor, Danville, Ill.
184. Walter Martin—City Engineer, Danville, Ill.
185. A. H. C. Shaw—County Engineer, Coshocton, Ohio.
186. W. P. Whitney—Alton, Ill.
187. H. B. Bushnell—Division Engineer, Illinois State Highway Department, Aurora, Ill.
188. H. E. Surman—Moline, Ill.
189. William M. Kinney—Universal Portland Cement Company, Chicago, Ill.
190. F. H. Eno—Ohio State University, Columbus, Ohio.
191. H. S. Perry—Highway Department, Columbus, Ohio.
192. R. E. Levering—Senior, Civil Engineering, Ohio State University, Columbus, Ohio.

193. F. E. Ballu—Contractor, Hampshire, Ill.
194. George S. Irwin—City Engineer, Delaware, Ohio.
195. Don Heaton—County Surveyor, Fowler, Ind.
196. A. W. Wright—City Engineer, Newcastle, Ind.
197. John W. Mueller—Consulting Engineer, Newcastle, Ind.
198. Dudley C. Meyers—Engineer, Oak Park, Ill.
199. Charles C. Brown—Editor, "Municipal Engineering," Chicago, Ill.
200. A. C. Loomis—Mattoon, Ill.
201. K. C. Gaynor—Contracting Engineer, Sioux City, Ia.
202. H. C. Stratton—Sebring, Ohio.
203. Harold S. Buttenheim—Editor, "The American City," New York City.
204. Edgar Traylor—General Contractor, Boonville, Ind.
205. Louis Meyer—County Surveyor, Boonville, Ind.
206. W. S. Harding—Crawfordsville, Ind.
207. Fred C. Smith—Construction Engineer, The Philip Carey Co., Cincinnati, Ohio.
208. G. C. Winslow—County Engineer, Greenfield, Ind.
209. Fred R. Williams—Cleveland, Ohio.
210. H. D. Brenning—Construction Engineer, Columbus, Ohio.
211. F. B. Dunn—Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio.
212. George Champe—Toledo, Ohio.
213. C. S. Pratt—Morgantown, W. Va.
214. Stanley E. Bates—Editor, "The Contractor," Chicago, Ill.
215. E. H. Christ—Grand Rapids, Mich.
216. C. H. Wells—City Engineer, Newark, Ohio.
217. George C. Faulkes—Paving Contractor, Terre Haute, Ind.
218. E. Bard—Paving Contractor, Terre Haute, Ind.
219. C. E. Sherman—Professor of Civil Engineering, Ohio State University, Columbus, Ohio.
220. H. P. Boynton—Cleveland, Ohio.
221. William B. Hargreve—Standard Brick Co., Crawfordsville, Ind.

⁂

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912

of "Brick and Clay Record"....published....Semi-Monthly at Chicago, Ill.................for October 1, 1916

State of Illinois }
County of Cook }
SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Edwin G. Zorn, who, having been duly sworn according to law, deposes and says that he is the Editor of the "Brick and Clay Record," and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher: Kenfield-Leach Company............Chicago, Ill.
Editor: Edwin G. Zorn..........................Chicago, Ill.
Managing Editor...None
General Manager: H. H. Rosenberg............Chicago, Ill
Business Manager: David B. Gibson............Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners or, if a corporation, give its names and the names and addresses of stockholders owning or holding 1 per cent. or more of the total amount of stock.)

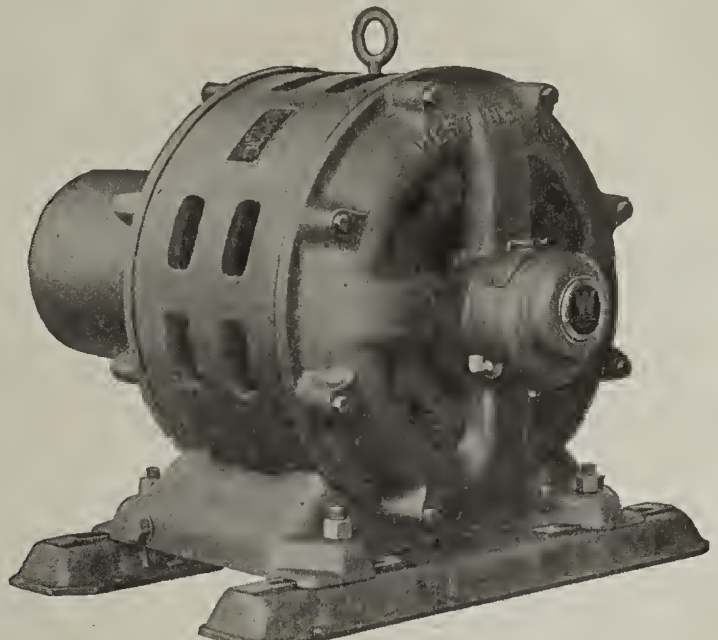
F. B. Cozzens............445 Plymouth Court, Chicago, Ill.
H. H. Rosenberg...........445 Plymouth Court, Chicago, Ill.
S. J. Leach...............445 Plymouth Court, Chicago, Ill.
L. W. James..............445 Plymouth Court, Chicago, Ill.
F. J. Sauer................445 Plymouth Court, Chicago, Ill.

3. That the known bondholders, mortagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)......None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securties than as so stated by him.

Edwin G. Zorn,
(Signature of editor, publisher, business manager or owner.)
Sworn to and subscribed before me this 29th day of September, 1916.

Anna M. Phillips.
My commission expires Jan. 25th, 1920.



Westinghouse Type CS Motor

One Contract—
One Responsibility

is what you secure in specifying

Westinghouse
Electrical
Equipment

We are in position to supply equipment from the steam supply to the productive machine, this includes:—

Stokers, Turbines, Generators.
Switchboards, Protective Apparatus.
Motors, Lighting Equipment, etc.

Without obligation on your part our engineers will be glad to solve your power problems.

A card to our nearest office will bring full information.

W WESTINGHOUSE ELECTRIC

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.
Sales Offices in all Large American Cities

A Satisfied Customer

is far more important to us than a kiln sale

We are building a Good Will Business. Hook Down-Draft Kiln Users are our best salesmen. Their Good Will goes farther than printers' ink. That is the reason for our unusual selling plan.

An **order is simply an opportunity for the Hook System to sell itself to you.** There is no sale—no obligation to keep it, until you have **tested it in your own plant, with your own clay,** and **are satisfied.**

This system of finding out, by personal use the advantages of the Hook Down Draft Kiln—its **exclusive Heat Distributing features,** its **uniform burning qualities,** its **time and fuel economy,** its **perfect simplicity,** is open to all clay-workers.

You can avail yourself of this offer without risk or obligation. We are selling "Burning Satisfaction."

Give us the number and size of your kilns, the kind of ware you make and your present burning time and fuel consumption. We will give you an estimate of the saving which the Hook System can make for you, and the cost of installing it on your kilns.

Hook Patent Kiln Company
614-15 Commerce Bldg., COLUMBUS, OHIO

Builders of "Ready for Ware" Kilns
Grate Bars and All Kiln Accessories

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

We Made a Mistake

On the front cover of the October 3rd issue of "Brick and Clay Record" appeared the advertisement of R. D. Wood and Company. In this advertisement a word was added that changed the meaning of the last paragraph.

The phrase—"with which practically any coal gas may be used," should read—"with which practically any *coal* may be used," eliminating the word gas.

Will you turn to the October 3rd issue and scratch, rub or thoroly blot out that word Gas? Please.

Electric Driven Plants

There are a great many clay plants on the fence, presumably undecided whether to change over to electric power or not.

Many plants have changed over, or have been equipped from the start with electricity so that it is easy to determine the relative merits of steam and electric power.

There are so many points of advantage accruing from the use of electric motors that it is not at all uncommon for the plants to install electric generators transforming their steam power to electric and driving individual machines with individual motors, making each machine so equipped absolutely independent of the balance of the plant.

In other cases the power is furnished by one large motor, transmitting its power thru the usual line shafting, belts and pulleys. The method used depends chiefly on local conditions attending at the time of the electric installation.

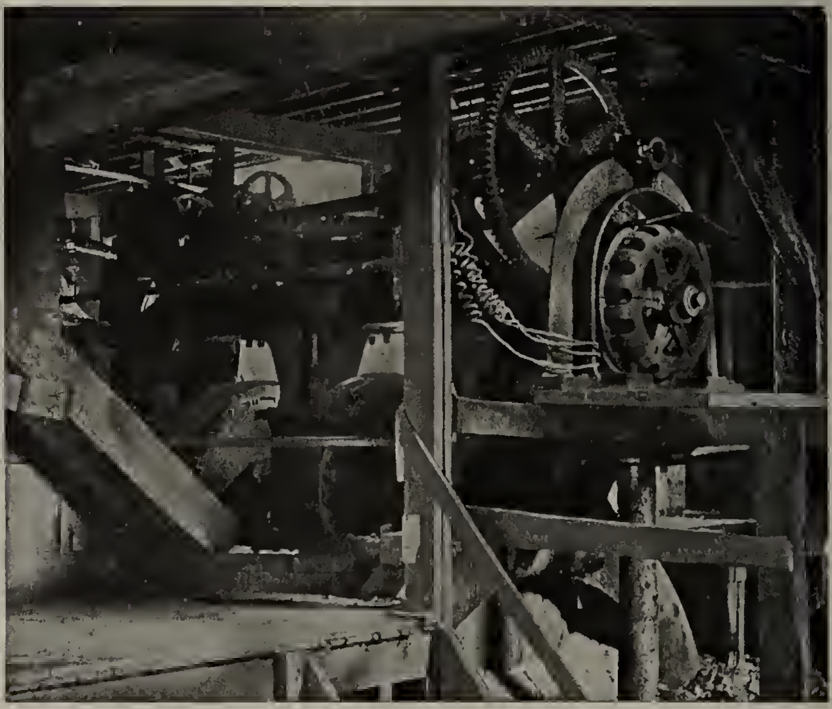
Invariably the electric generator and motors or the electric motor, or the motors, has given full satisfaction.

Two brief letters from plants using Westinghouse motors are here noted. The first from The Ferro Brick Company of Watsontown, Pa., says in part:

"We never made brick with any other power except electric.

"The average cost per thousand building brick last year was 44.4 cents."

The other letter from The Keystone Clay Products Com-



Dry Pan Driven by 40 h.p. A. C. Westinghouse Motor, at the Plant of the Keystone Clay Products Company, Greensburg, Pa.

pany, of Greensburg, Pa., says in part: "Electrical equipment as furnished by The Westinghouse Electric and Manufacturing Company here is very satisfactory. We have not used anything else."

Both letters tend to show the satisfaction universally existent among clay plants using electricity.

Rapid Improvement

The many friends of F. L. Hopley, of the American Clay Machinery Company, will be glad to learn that he is improving rapidly; and judging from the favorable progress he is now making, it is expected that he will be able to leave the hospital in about two weeks. His previous condition, however, was so critical that it will probably be a month or six weeks before he is able to resume his regular duties.

A Better Watchman

Do you have a watchman on your plant? Is he competent to protect your valuable property from fire, vandalism or other equally destructive agents?

In the October issue of "Factory" there is a splendid discussion of this point in correlation with the use of a Watchman's Time Clock. Excerpts from this article follow:

"Time was when with the candles snuffed and door safely fastened there was small chance of inside fire. But electric current, matches, machinery, gas, volatile oils, engines working day and night, the chances of the red fiend are enormously increased.

"If your particular plant has certain inherent or acquired weaknesses, guarantee their constant oversight by having your night watchman fill out a report, nightly disclosing their condition. The first round of the evening may be devoted to feeling all heavy bearings, the next to water casks and pails, to fire doors, hose house equipment, machine guards, to preventing grass fires in season, to reporting accumulations of debris, of oily bunches of rubbing waste or oil soaked overalls uncared for.

Brick Machine Driven by Westinghouse Slip-Ring Motor, at Ferro Brick Company, Watsontown, Pa.

"Two things will thus be gained: greater specific efficiency in the service, and, more than all else the training of mental faculties to observe, correct, report and prevent. If in your present watchman these faculties are absent or impaired this method will disclose the fact."

Give your watchman a Hardinge outfit, and then give him some mental work to do that will keep him alive to conditions, instead of automatically drilling from one station to another—half asleep. The combination of Hardinge's Watchman's Clock and something interesting to do that is worth while will produce an efficient worth while watchman.

As a footnote it may be interesting to know that Hardinge Bros., Inc., 1760 Berteau Avenue, Chicago, have furnished

GANDY and Heat

"We have subjected your Gandy Cotton Belting to severe tests on our starching machine, where it is run in intense heat, and find it is far preferable to leather belting, one Gandy Belt giving us the service of two or three leather belts under the same conditions. Would recommend this belting to anyone desirous of a belt capable of withstanding intense heat."

The baking and hardening influences of intense heat are natural enemies of the pliableness so necessary to good belt service.

Ordinary belting, by reason of its very nature, hardens and stiffens when subjected to high temperatures, but Gandy Belting, owing to the materials used and the process of manufacture, resists these influences to a high degree.

While "intense heat" conditions do not prevail in all shops, this and other advantages, such as immunity to the effects of water, gas, oil, dust and steam simply emphasize the certainty that Gandy will more than make good under ordinary conditions.

There may be a place in your plant where the use of Gandy will mean better service and money saved. Write us—our Service Department will tell you frankly if you can use Gandy to advantage.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

SAY I SAW IT IN BRICK AND CLAY RECORD

An Understandable
Book On Steam Power

"Steam Power"

By C. F. Hirshfeld, M. M. E., and
T. C. Ulbricht, M. E., M. M. E.

The descriptions given in this book of power plant apparatus will enable the reader to become fairly familiar with the more common types.

This work gives a correct viewpoint with regard to the use of heat in the power plant, and supplies the tools required for the solution of power plant problems of the common sort.

The Table of Contents below will give you an idea as to the field covered by this book.

TABLE OF CONTENTS

Physical Conceptions and Limits. The Heat Power Plant. Steam. The Ideal Steam Engine. Entropy Diagram. Temperature Entropy Diagrams of Steam Cycles. The Indicator Diagram and Derived Values. Compounding. The D-Slide Valve. Corliss and Other High-Efficiency Engines. Regulation. The Steam Turbine. Condensers and Related Apparatus. Combustion. Fuels. Steam Boilers. Recovery of Waste-Heat. Boiler Feed Pumps and Other Auxiliaries.

428 pages, 5¼x8, 232 figures, Cloth, $2.00 net.

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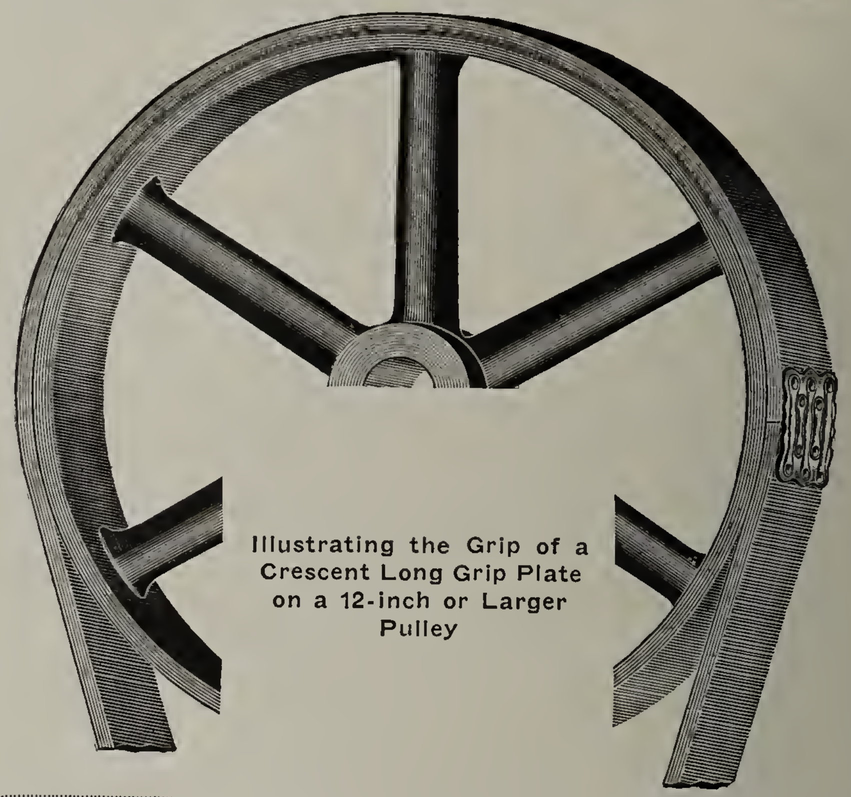
"Brick and Clay Record's"
Book Department
445 Plymouth Court, CHICAGO



Illustrating the Grip of a Crescent Long Grip Plate on a 12-inch or Larger Pulley

recently complete installations to the following clay plants: Montezuma Brick Works, Montezuma, Ind.; National Drain Tile Company, Hillsdale, Ind.; Lock Haven Fire Brick Company, Lock Haven, Pa.; The Knight Pottery, East Akron, Ohio; The Fultonham-Texture Brick Company, East Fultonham, Ohio; El Reno Brick Company, El Reno, Okla.; American Terra Cotta & Ceramic Company, Terra Cotta, Ill.; National Fire Proofing Company, Osnaburg, Ohio; Oskaloosa Vitrified Brick Company, Oskaloosa, Iowa; The Stark Brick Company, Canton, Ohio.

Crescent Belt Fasteners

For many years the Crescent belt fastener has proved a most efficient and most economical belt-joining device. Crescent belt fasteners are recommended throughout the world by the leading manufacturers of leather, balata, stitched canvas, cotton, rubber, hair and all other fabric belting.

The qualities that have combined to make the Crescent method a success in America and Europe are safety, strength, durability and economy. That Crescent belt fasteners possess these essentials of efficient belt-joining is confirmed by thousands of testimonials volunteered by users in every line of mechanical industry.

By the use of specially constructed Crescent plates and self-piercing, self-clinching Crescent rivets, no holes are cut in the belt and the full strength of the belt is maintained at all times. The prongs of the Crescent rivets merely separate the lengthwise fibres or warp of the belt and, instead of removing material and weakening the belt as in the punching of holes for leather, wire or steel lacing or for bolts or hooks, Crescents actually reinforce the belt at the joint.

Crescent rivets clinch beneath the surface of the belt on the pulley side. No part of the Crescent joint comes in contact with the pulleys. It cannot weaken from wear and, therefore, maintains its strong, perfect grip indefinitely. The strain is equally distributed across the entire width of the belt and a uniform grip is always maintained.

Crescent plates are curved at the edges to permit the free, natural movement of the belt as it leaves the pulleys. They preserve the belt's life. They conform to the circumference of the smaller pulley and the belt grips perfectly all around, with no loss of traction.

Crescent belt fasteners make a perfect butt joint equal to an endless belt on the pulley side. It runs smoothly and silently—it does not knock or hammer on pulleys or motors. All the power is transmitted all the time uniformly and evenly.

These fasteners are manufactured by the Crescent Belt Fastener Co., New York City.

Chain Hoists

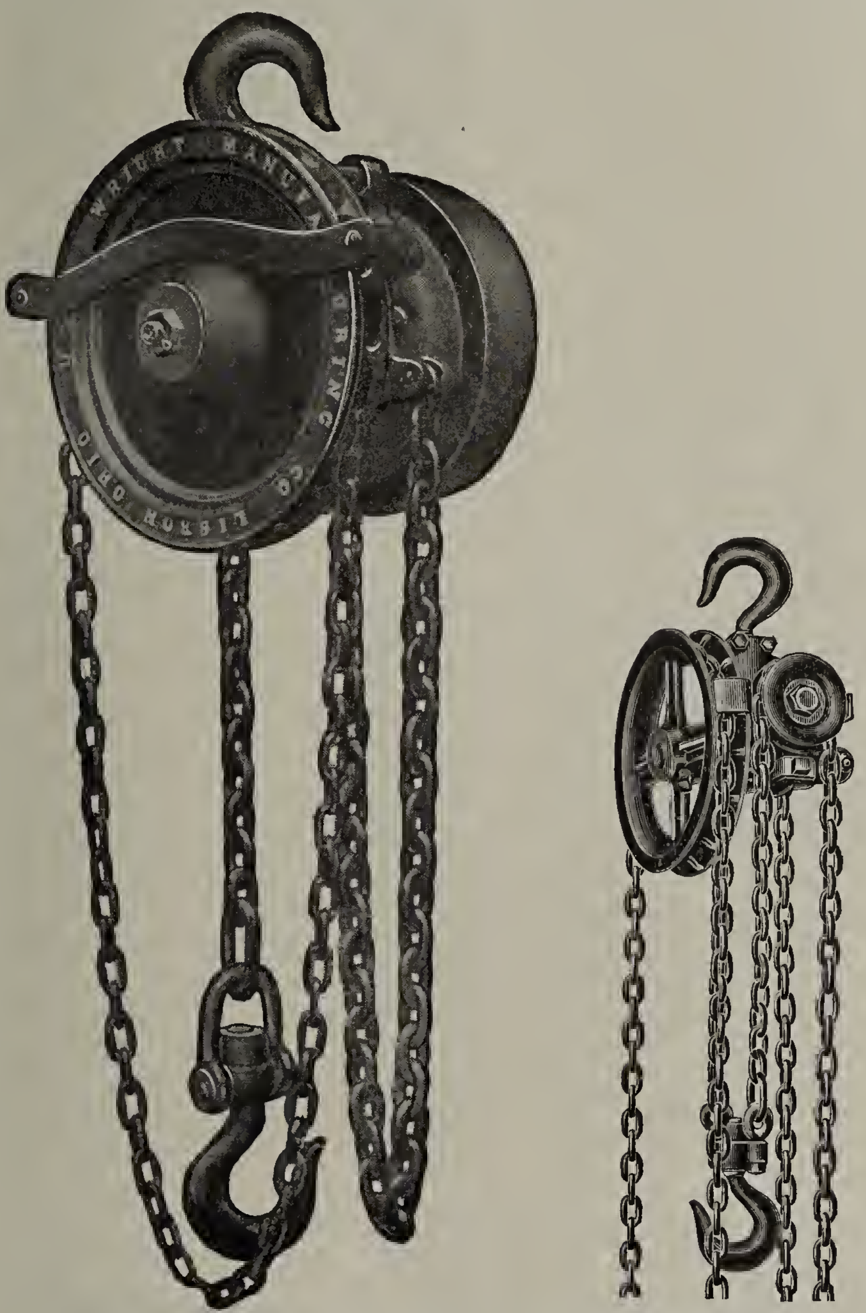
The clayworkers who visited The Terre Haute Vitrified Brick Company's plant recently undoubtedly noticed that above the auger machine there hung a chain hoist.

This hoist is as indispensable as any other of the small auxiliary tools on the plant. There are so many instances where it is necessary to lift into place the heavy machines, the augers, heads, dies, gears, mullers, shafting, etc., that a good hoist can pay for itself as a time saver and as making the operation safe, oftentimes in one operation.

Usually the hoist is suspended above the auger machine but it is comparatively light and can be transferred to any part of plant where lifting is required.

Two cuts from The Wright Manufacturing Company, Lisbon, Ohio, show two different types particularly useful in clay plants.

The High Speed Hoist is used in hard continual service. Every working and load-sustaining part is made of steel and malleable iron and it is capable of sustaining very heavy overloads.



The Smaller Illustration Shows a Wright Standard Screw Hoist. The Larger One Shows a High-Speed Hoist

The Standard Screw Hoist is especially recommended as a light powerful hoist requiring a minimum of head room, and for usage where it is continually shifted about. One man of course can always pull the full load.

Mining of Manganese Ore in Virginia

American manganese ore in large quantities is now available for the clay industry from the Crimora Manganese Corporation's property at Crimora, Va. The company (main office at 15 Broad Street, New York City) has perfected extensive mining plans and purchased equip-

This is perhaps the most remarkable letter ever written concerning any type of excavator

ONE MACHINE

digs 300 yards of clay for storage, and at the same time strips and automatically disposes of two feet of stripping. All of this with one operator and three laborers.

This letter from

The Claycraft Brick Co.
Columbus, Ohio

Replying to yours of the 30th ultimo—beg to advise that the Buckeye Traction Digger which we use at our Groveport plant to dig the clay, has been in use a long time. In fact, it is one of the first machines they turned out. We find this type of digger very satisfactory, and more economical than any other machine for this purpose.

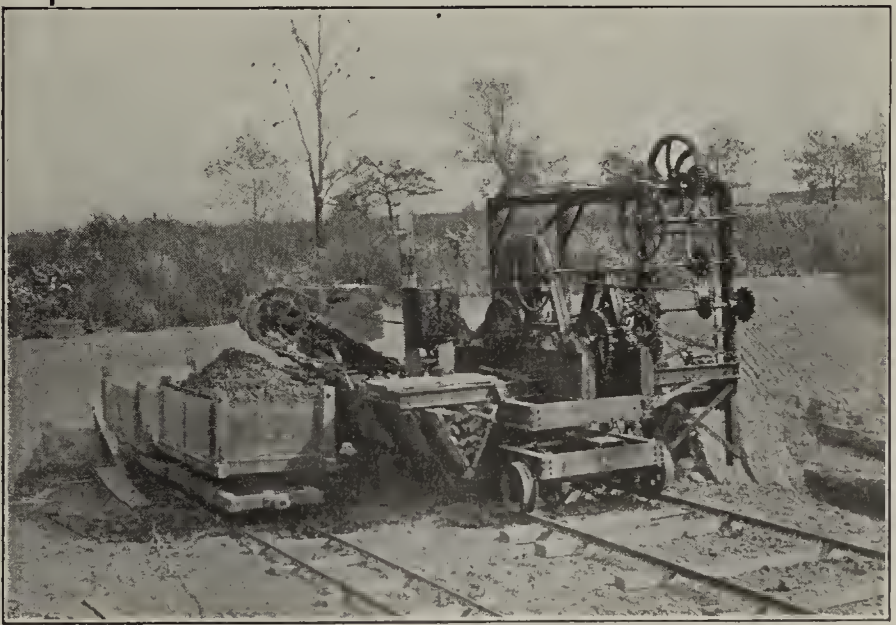
Our clay runs about 7' in depth with about 2' of over burden. We have added to our machine an auxiliary digger, which is placed in front of the large digging wheel, and which removes the 2' over burden by means of a conveyor and dumps this waste over into the open pit with no labor to remove it. With one operator, and two or three laborers cleaning up in the clay pit and handling the cars, we are able to store as many as two hundred (200) 1½ yard cars of clay per day. We use a gasoline locomotive and haul the loaded clay cars away from the digger, as it is impossible to haul away the entire output of the digger with horses. The gasoline locomotive is also more economical than horses in hauling the clay.

Trusting this information will be of some value to you, we remain,
Yours very truly,
THE CLAYCRAFT BRICK CO.,
By H. J. Kaufman, Purchasing Agent.

The Buckeye Clay Digger is simple in operation, easy to move about, and can be furnished with either electric or gasoline power.

We have a book, "Digging Clay for Profit," that we would like to send you.

THE BUCKEYE
TRACTION DITCHER CO.
FINDLAY, OHIO



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

ment which it believes will adequately meet part of the needs of the peculiar mining conditions at these deposits. Special heavy machinery, electrically driven, has been installed.

The Crimora mine is located in Augusta County, Va., at the foot of the Blue Ridge and on the Norfolk & Western Railroad, from which a branch line of three miles runs to the mine. According to government reports the mine has produced over 50 per cent. of all the manganese ore ever mined in this country. Recent extensive drillings and exploration show over 5,000,000 tons yet remaining in the deposit, according to engineers' estimates.

For many years the mine has had a production of about 200 tons monthly, but the old milling equipment has recently been dismantled to make way for the new. Excavating and transportation equipment, increased reservoir water storage, pipe lines, etc., have been hurried to completion. The first unit of this plant, shown in one of the illustrations, is 66 x 130 ft., and has a capacity of 5,000 tons of washed manganese ore monthly. Water is brought by a flume and a 20-in. pipe line from a storage reservoir nearly two miles away in the mountains, under a 250-ft. head. The old reservoir dam has been built higher, increasing the storage to meet the requirements of the new mill and as additional mill units are built the company will develop as required its reserved reservoir sites, which have a total storage capacity of 450,000,000 gal.

A Portion of the 20-inch Steel Pipe Line Which Conducts the Water to the Washing and Crushing Mill

The mill has been built on a hillside with a fall of 120 ft. from the receiving bins to the railroad siding, thus permitting an entirely automatic gravity process at a great saving in labor and handling.

In the late eighteen-nineties the Carnegie Steel Company leased the Crimora property and operated the mine for a number of years under the then best-known methods, consisting principally of underground drifts—gophering for the rich ores. Every foot of the way had to be timbered and under this expensive hand, pick and shovel method the lessee mined, washed and shipped about 300,000 tons of ore, paying a royalty of $2 per ton and would

The New Mill at the Crimora Manganese Mine in Virginia
The Ore is Worked Almost Entirely by Gravity

have renewed the lease had not the owners made prohibitive demands for increased royalties. United States government reports state that "during these years the Crimora mine was the greatest producer of manganese in this country and perhaps in the world."

Manganese in correct size and analysis for the clayworker's use can now be had in quantities.

Richardson Kiln Sold in Australia

A very interesting gentleman, William Evans, of the firm of Evans Brothers, manufacturers of roofing tile, and dealers in building materials, Melbourne, Australia, has been visiting this country for the past few weeks looking up labor-saving machinery and devices and especially investigating producer gas for the burning of clay products. Those who had the pleasure of meeting Mr. Evans were impressed with his genial nature, his fine character, his business ability and his progressive spirit, and were made to realize that Australia's assets are not alone in her natural resources, but also in her citizenship.

A year or two ago Evans Brothers remodeled their power plant, changing from steam to producer gas, and found that the result was a saving of about one-half in fuel. This was so satisfactory that they thought that perhaps a large saving could also be effected by using producer gas in the burning of their wares, and it was chiefly to investigate this question that Mr. Evans came to America.

He visited a number of the well-known brick plants in the middle west where producer gas is being used in continuous kilns, and one plant where it was being used in periodical kilns. After seeing these plants and talking with their managers and after consulting an engineer to whom he was referred, Mr. Evans was forced to the conclusion that he had better give up the idea of using producer gas for the burning of his roofing tiles. A few days later, however, he was permitted, through the courtesy of President Brown of the Ludowici-Celadon Company, to visit the large plant of this company at New Lexington, Ohio. He did not go there with the expectation of seeing producer gas firing and was surprised to find producer gas being successfully used in this fine modern plant in the burning of roofing tile in a kiln recently built. He watched the kiln in operation for three days and a few days later, upon his return from the east, went back there and saw them taking from the kiln the tile that were burned at his first visit. He was convinced that he had at last found what he had been looking for.

From Ohio, Mr. Evans went to Hebron, North Dakota, and spent a week observing the operation of the same form of kiln burning high-grade face brick with producer gas from Dakota lignite. He became enthused with the producer gas proposition and before sailing from Vancouver for Australia, September 27th, placed a rush order with the Ceramic Supply & Construction Company for complete plans and specifications of a Richardson Producer-Gas-Fired Continuous Kiln and the Richardson Gas Producers; also for a producer gas heated dryer for roofing tile.

"The Booster"

It is the title of an interesting little journal published by the Sawyer Belting Company of Cleveland, Ohio.

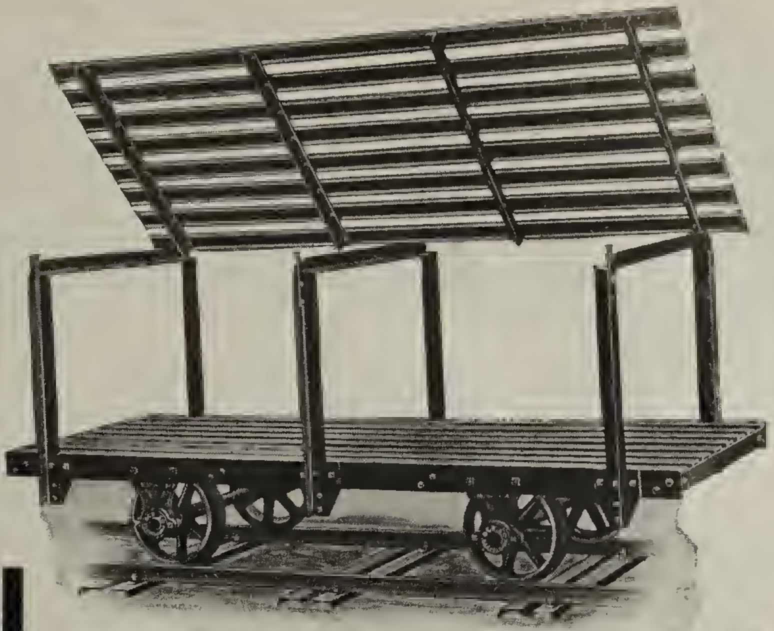
It is devoted to "philosophical" stuff and "tough" stuff. Under the first named head are discussions of we humans and trade marks; and under the second classification, tough stuff, is a discussion of Sawyer belts and a stock list.

Is your name on the list—or did you neglect to ask for its free delivery to your office?

Appoint Western Agents

The Homestead Valve Manufacturing Company have appointed the O. C. Keckley Company, 608 South Dearborn Street, Chicago, as their western agents. They will have full charge of the sales of Homestead Valves in parts of Illinois, Iowa and Wisconsin.

The General Store is a good place to shop.



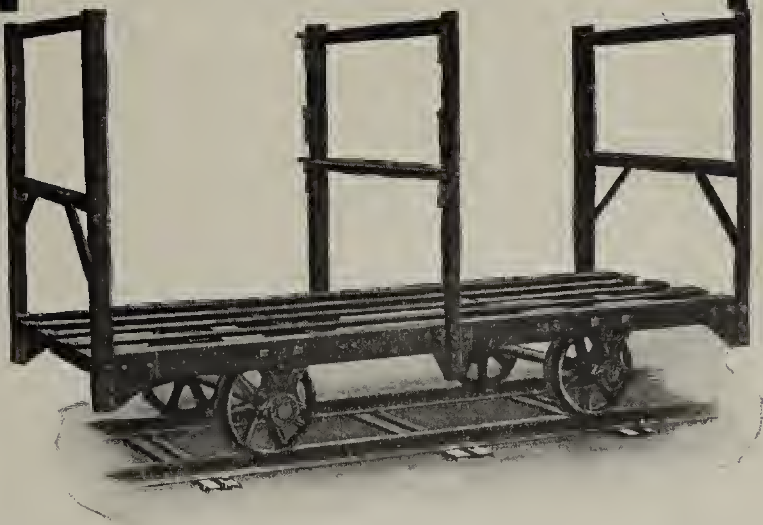
Let Us Be Your Car Department

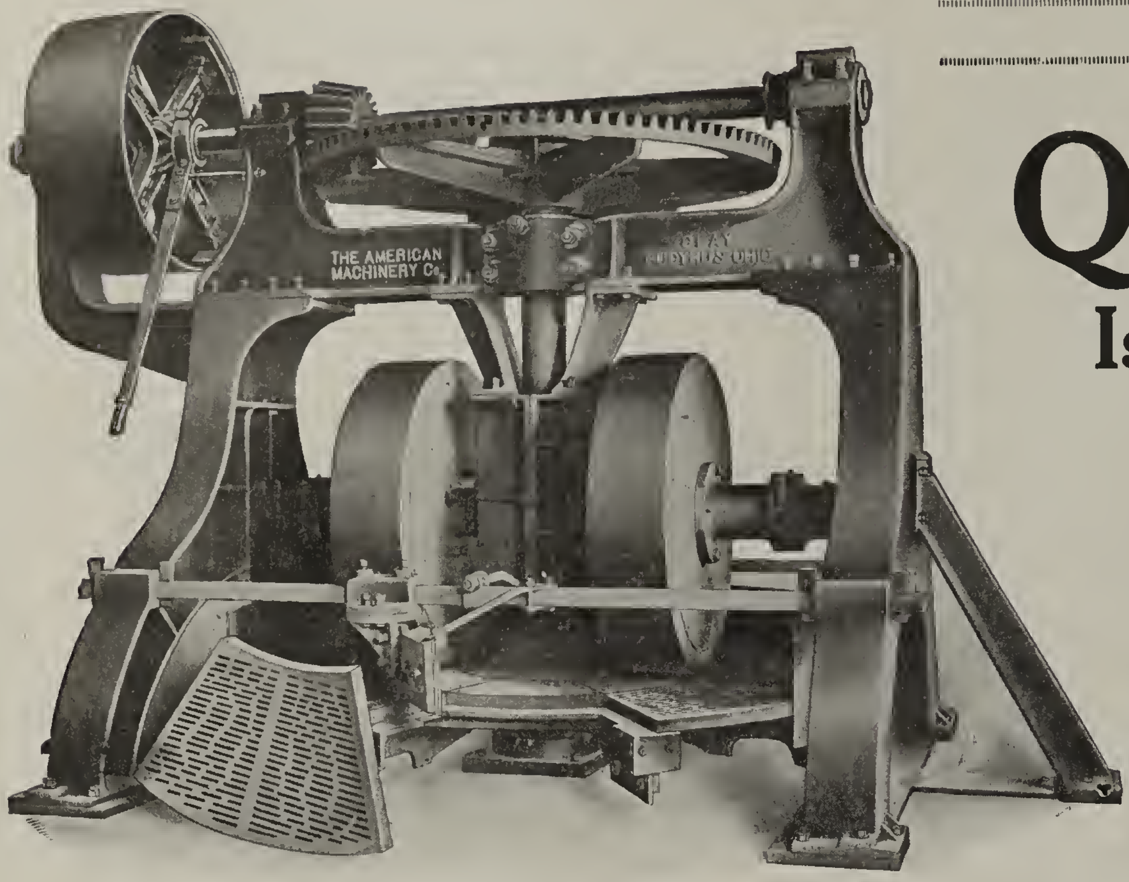
That's what hundreds of clay products manufacturers have been doing for the past 18 years and not a single one of them has ever regretted it.

Our regular line of standard cars and trucks comprises more than 400 designs—yet we are also prepared to make special designs to suit any particular requirements. As for quality and durability—no better cars can possibly be made—Lakewood Cars are **"Built to Last."**

We would like to send you our Book 16—it's free and you ought to have a copy.

Lakewood Engineering Co.
CLEVELAND, OHIO





American No. 57 Dry Pan.

QUALITY

Is Necessary to Make

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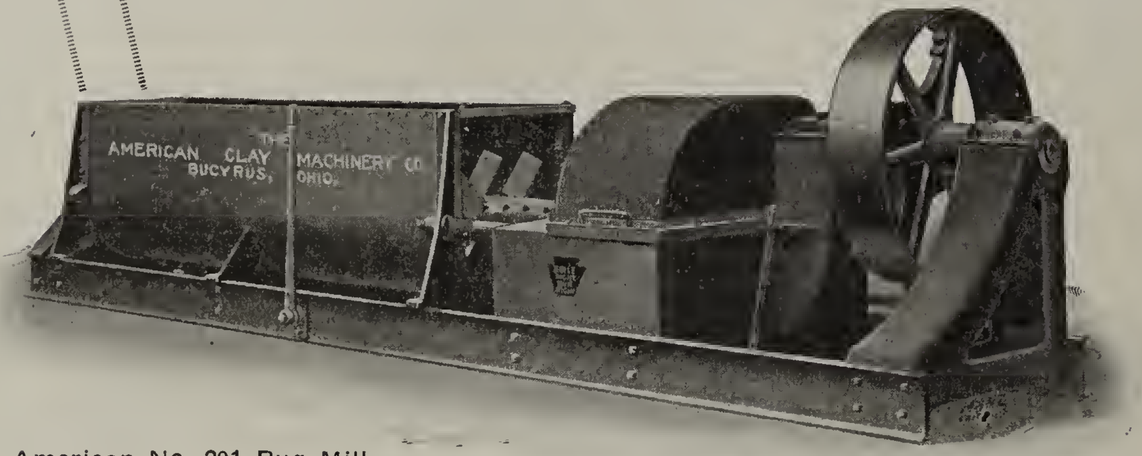
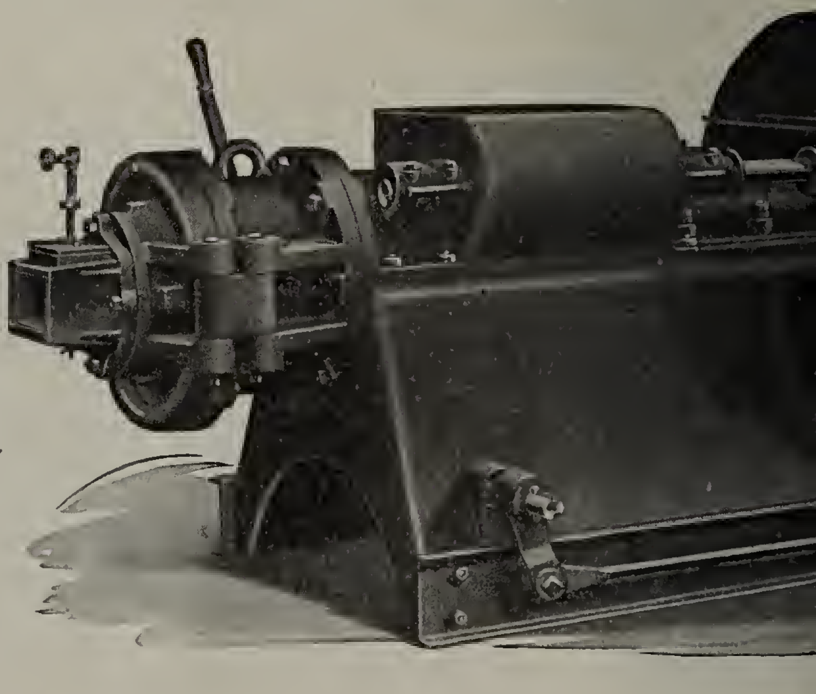


American No. 291 Pug Mill.

American No. 290 Brick Machine.



The
American
Clay Machinery Co.
Bucyrus, Ohio

SAY I SAW IT IN BRICK AND CLAY RECORD

BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

"We Mean Business"

is what the American Face Brick Association is saying about its convention to be held at French Lick, Ind., December 6th, 7th and 8th. All unnecessary frills will be "cut out." The various sessions are being planned with a view toward getting results. Of course, there will be plenty of opportunity for good fellowship, but not at the expense of the industry's progress. You will want to know in advance all about this most unusual gathering which will be open to non-members, especially if you are a manufacturer of or dealer in face building brick. Most naturally. Then read the *November 21st issue of "Brick and Clay Record."*

¶ *"Is the Winter-building Season Real or a Dream?"* This will give you something to think about. Answer it for yourself and then compare your conclusion with that reached in an article under the above subject to appear in the *next issue*, written by *C. C. Casey*—a regular contributor to *"Printer's Ink."*

¶ *"Three Important Elements of Scientific Management,"* is the subject of Dwight T. Farnham's next article to appear in the *November 21st issue*, and it measures up to the same high quality of his previous contributions.

¶ Ernest W. Knapp of the Sun Brick Company is with us again. This time he writes on *"The Hollow-ware Machine Which Does Not Depreciate."* Looks like he has discovered something great. Look for it *next issue*.

¶ *"Porous Brick by Use of Sawdust,"* by B .T. Sweely—the second of the two papers to win a prize in the Ceramic Students Essay Contest conducted by *"Brick and Clay Record"* this year—will have a place in the *November 21st number*. This paper, written by a young ceramist, is worth the most careful reading of the seasoned veteran in the business.

¶ The regular departments with their usual sparkle and helpfulness will be in the *next issue*, including *"Questions and Answers"* which has been omitted from the current number.

If you believe in learning by experience, let it be the other fellow's experience. But there is only one place where you can find recorded live, up-to-date experience in the clay-working industry, and that is in *"Brick and Clay Record."*

The EDITOR'S CORNER

IN THESE DAYS of unparalleled achievement—when science and invention are working overtime to bring about results that are nothing short of miraculous compared to the possessions of the human race during recent decades, to say nothing of a century ago—it is getting to be a habit to pick up the morning paper and read the startling news of another feat of man's brain. The fact of the matter is that we are no longer surprised at the exceptional thing; we rather expect it.

The signs that pointed to a revolution in the method of building brick roads only a few months ago, literally speaking, are fast developing into confirmed facts that the procedure to be followed in laying a burned clay pavement is being transformed. The absorbing interest displayed in the recent inspection of "monolithic" brick roads at Paris, Ill., is only the fulfillment of what many saw was bound to happen.

For years excellent brick pavements have been laid on a concrete foundation with a sand cushion intervening between the upper slab of brick and the lower slab of concrete, or other suitable foundation material. Paving-brick manufacturers can point to many of these highways with undiluted pride as being a worthy example of how a dependable pavement will stand the test of time. However, there have been some imperfections in the brick road of yesterday. Show us the road that is absolutely perfect.

The "monolithic" type of construction that is being followed today in Edgar county, Illinois, is decidedly a step in the right direction because it is productive of a better type of brick road than is possible when a sand cushion is used. But we are not yet of the opinion that even this advanced method has brought perfection.

Laying brick on a wet concrete base, such as is being done in the construction of Vermilion county's bond roads, is a method that is certainly worthy of careful thought and study, even if it has not as yet had an opportunity of passing Time's acid test. This method has some features that are very attractive, particularly the possibility of building a brick road with maximum durability at minimum cost.

Above all in the consideration of this, or any other new type of brick road, let us be open-minded—willing to be shown. The motor truck is doing much to bring tax-payers around to the point where they are admitting that hard roads are positively a necessity from an economic standpoint.

Brick must be in a position to claim superiority among hard roads and be able to prove it. Therefore, let us not, like a thankless ingrate, give anyone "the cold shoulder" that is trying to make the brick road an unqualified success in the eyes of the nation.

* * *

May Be Your Chance

THE USE of a vacuum-cleaner for renovating kiln bottoms is a novel idea, to say the least. It strikes us as being a thought well worth considering for, if such a machine could be employed in the connection above stated, it would remove one source of gray hairs for the superintendent.

No human being relishes lying on his back and stomach in the inky darkness of a kiln flue on a warm day, scooping up sand and bits of burned clay in a tomato can by the flickering light of a torch and crawling back to an opening where he can hand it to a fellow workman above. It is a nasty job at best and, if any device can be discovered that will make unnecessary the distasteful task of ordering some poor wretch "down in the hole," contentment among clay plant employes would be on a much more satisfactory plane.

Now the back-and-stomach method is necessary, since there is no other way known whereby a kiln bottom can be cleaned, and it is a job that certainly must be done.

Here is a chance for some inventive genius to make a name for himself, by first procuring a vacuum-cleaner with a "can" or holder that is sufficiently large to accommodate the quantity of "sweepings" usually found in a kiln bottom and then giving the thing a practical test, announcing to the world the results of his experiment.

* * *

Valuable Criticism

A STRANGER has come into our midst. He is a combustion engineer and recently he made an inspection of a Pennsylvania clay plant while there on some special business—that of testing the efficiency of a number of boilers and furnaces in the power house of this plant. He was so horrified by what he saw of the "science" of turning raw clay into finished products, that he was moved to write us an article on his experience and the conclusions which he has drawn therefrom. This article appears on page 803 of this issue and F. D. Harger is the author.

Incidentally, Mr. Harger almost made a "bull's eye" in his first attempt at writing on clayworking. We must admit that he has shown us what a mess we are making of our attempts to get the highest possible production at the lowest cost, *when viewed from the standpoint of combustion engineering,* which has already been developed to a high state of efficiency and with only a few alterations could, should and soon will be applied generally in the clayworking industry.

This article is of real value in that it gives us something to think about. Coming from a man who has a disinterested and detached viewpoint, it is intensely interesting and frank.

Mr. Harger discusses a problem that is complicated by the chemical effect and action of heat and heated active gases on clays. In addition to the excess air needed to produce perfect combustion in fuels, a further excess of air (oxygen) heated to a high temperature in order to oxidize the iron, sulphur and carbon in the clay, is needed. Such air is also necessary as a carrying agent to distribute the generated heat to each portion of the kiln.

Mr. Harger may or may not have taken this into consideration, but it is a point that must be recognized if any really constructive work is to be done in applying gas analysis to brick kilns.

NEW MONOLITHIC BRICK

P. C. McArdle (on the left), Superintending Engineer of the Vermilion County Bond Roads, and F. L. Roman, Testing Engineer, Illinois State Highway Department

With Part of Proceeds from Huge Bond Issue, Latest Type of Brick Road, Omitting the Dry Mix

* * *

Experimental Road Built at the Suggestion of P. C. McArdle by the Danville Brick Company Demonstrates the Wonderful Possibilities of Brick Laid on a Thin Concrete Base (See Editorial on Preceding Page)

* * *

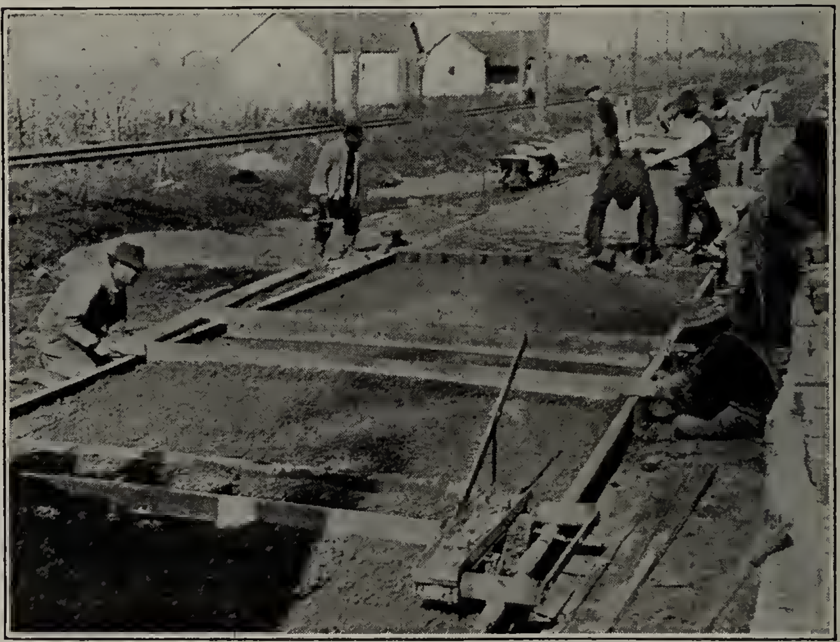
WHEN Vermilion county, Ill., decided to pull itself out of the mud, it set about the task with a celerity and despatch that augers well for the future prosperity of its taxpayers and the excellence of its road system. A million and a half of dollars is a lot of money to spend in the period of from twelve to twenty-four months on one branch of public improvements and, what is still more surprising, it was decided almost over night, as it were, to invest this sum in dependable highways. That Vermilion county was fast in the mud can hardly be doubted by anyone who remembers traveling over its roads prior to January 1st, 1916, and, even now, an interested visitor can see traces of the former deplorable condition of its highways. This county has put to shame many other similar governmental divisions by its prompt action and the elimination of "hot air" in connection with the proposed improvement.

EXISTING PLAN OF ROAD BUILDING TOO SLOW

The Vermilion county plan of building good hard roads by a county bond issue was worked out to supplement the building of such roads by state-aid. When the first allotments of state-aid money were made in Illinois in 1913, Cook was the only county that received an appreciably larger amount than Vermilion, yet Vermilion county's allotment for the two years was less than $31,000. Thru this state-aid plan the county would get during a two-year period about $61,000 for road building. This amount would build, perhaps, five miles of road. As there were 311 miles of state-aid road in the county, it was clearly evident that unless the state increased very materially the amounts appropriated for such purposes, few people of this generation would live to see all of the state-aid roads built. It was felt that progressive citizens would prefer to have the roads at once so that they, themselves, could use them. The suggested issue of road bonds, payable in the future, seemed to offer a way to such an end; Vermilion county took that way.

COUNTY BOARD PREFERRED BRICK

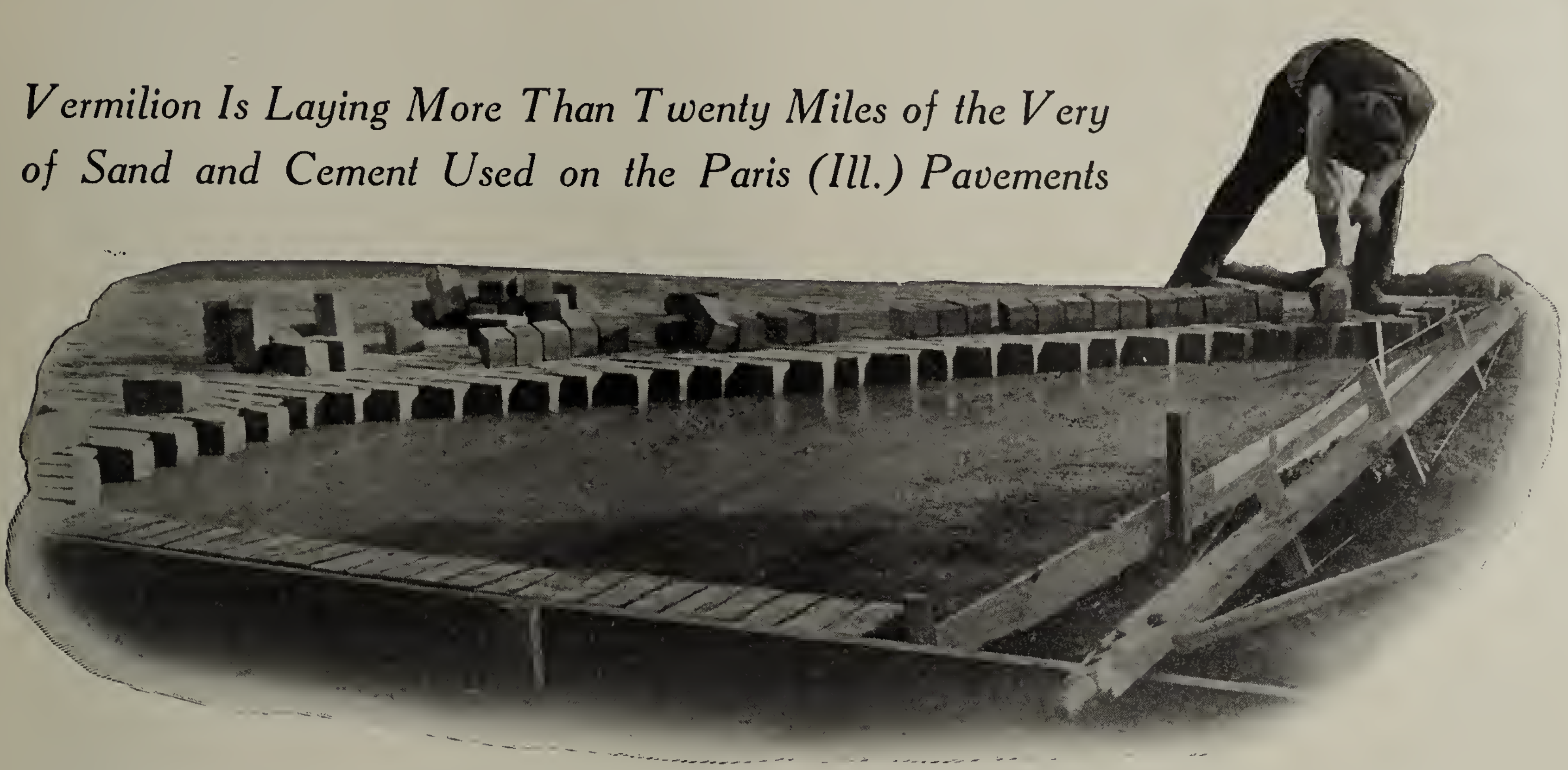
After computations had been made and the bond issue authorized by the citizens of the county, it found that, while the preference of the county board for all brick construction was very marked, still the cost of paving the 166.15 miles of road with that material would exceed the amount voted for the purpose. The board felt obligated to build all of the mileage included on the ballot and, in order to do so with the funds available, concrete of a cheaper type had to be adopted for the major portion of the system. Brick, however, was used as far as possible and for the heavier traveled roads near the city of Danville and upon the Dixie Highway as it passes thru the county. While the cheapest form of concrete road was chosen, the heaviest type of brick was the choice of the board. Of the 166.15 miles of road to be built, 21.247 are to be of brick and 144.909 of concrete.



After the Concrete Base Is Leveled Off with the Double Template to the Desired Crown, Tamping Templates Are Used to Compact the Base and Get a Smooth, Firm Surface Upon Which to Lay the Brick

ROADS *in* ILLINOIS CO.

Vermilion Is Laying More Than Twenty Miles of the Very of Sand and Cement Used on the Paris (Ill.) Pavements



Brick Being Laid on a Thin, "Green" Concrete Foundation on the Danville (Ill.) Brick Company's Stretch of Experimental Road. Note the Simple Form of Template Used for This Work at the Extreme Right and the Header Course of Full Size Brick Laid for a Curb

The bonds were voted in November, 1914. The following June the first parcel consisting of one-third of the total issue was sold, the second third being disposed of one year later. The remaining $500,000 will be sold in June, 1917.

P. C. McARDLE—A GOOD FIND

When it was ready for business, one of the first things which the county did was to engage P. C. McArdle as superintending engineer for the construction of the bond roads—a move which the board has never regretted.

Recognized as one of the best road engineers in the country, Mr. McArdle supplements his mere technical attainments with an adequate personality. He realizes that the co-operation of officials, contractors and the public is essential to smooth operation of the work.

Mr. McArdle has set for himself the task of visiting every portion of the work three times a week. To accomplish this, he drives one hundred miles a day in a "tin Lizzie" which the commissioners have bought him and much of that distance is thru the ruts of temporary roadside driveways. His vigilance spurs contractors to do their best. There has been a minimum of friction largely because of the atmosphere of cordiality and reasonableness which the engineer expresses to all he meets. This is by no means confined to his official connections. He makes it a business to be on good terms with every man, woman and child along his routes. All know him by sight and all get a greeting. As a result, he is able to get co-operation in such matters as the removal of farm fences to a uniform frontage or in persuading telephone companies to move their poles where this is desired.

Responsibility to the public is kept in mind at all times. The progress map, upon which the daily execution of the work is recorded in colored ink, does not repose in the secret archives of the engineering office but is posted in the courthouse corridor. The office and laboratory features of this stupendous engineering task are in charge of C. A. Clark, assistant to Mr. McArdle. The preparations for this work were unusually complete and as the work is being carried on it challenges the admiration of engineering visitors. Mr. McArdle is credited with saving many times his salary. The engineering charge against the improvement, estimated at five per cent. in advance, will amount to less than three per cent.

There are two outstanding features in connection with this remarkable good roads project. The first of these has already been mentioned—that of spending a million and a half dollars on a county bond issue. The second fact is one that is of vital interest to paving-brick manufacturers, namely, the adoption of an entirely new method of building brick roads.

THE "LATEST WORD" IN BRICK ROADS

About a month ago those who were interested in brick road building met at Paris, Ill., and inspected what has been termed the "last word" in the construction of brick pavements. Vermilion county's brick roads, however, seem to be the "latest word."

The history of the Paris (Ill.) "monolithic" brick pavements is very interesting. According to P. C. McArdle, on November 6th, 1914, at which time he was acting chief state highway engineer, he went from Springfield to Paris to make the final inspection on sections A and B of the state-aid roads in Edgar county. These two sections of road were of brick on a 4½-inch concrete base with a one-inch sand cushion, laid under the time-honored specifications. As a result of this inspection and a conference with W. T. Blackburn, Alan J. Parrish and Rodney L. Bell, division engineer of the state highway department, the "monolithic" type of brick pavement as laid in Edgar county, was evolved, Mr. Blackburn being most active in this then experimental type of road.

To what proportions "monolithic" construction has extended was readily seen by those who made the trip to Paris during the recent National Paving Brick Manufacturers' Association convention.

Vermilion county, however, has gone one step farther in the development of monolithic brick roads, eliminating the dry mix of sand and cement used in the Edgar county roads and laying the brick directly upon a "green" concrete foundation.

FEAR OF BRICK'S SETTLING FOUND UNGROUNDED

This practice has come as the result of considerable study and experiment on the part of Mr. McArdle and others interested in making the brick road the most permanent of any type. Taking advantage of the experiences of engineers with the sand cushion and "monolithic" brick roads which are to be found in Edgar county, Mr. McArdle came to the conclusion that the laying of the brick on a "green" foundation would eliminate for all times any objection there might be in building a brick road.

There was, however, one obstacle which occurred to him in thinking out the method of construction which is being followed in Vermilion county today in the building of its brick roads, and that was that the brick might rapidly settle down unevenly in the wet concrete. However, it was found that this fear was not justified in practice and it has been found practicable with the use of the ordinary template to level off the concrete to true grade and to lay the brick in the concrete base without appreciable settlement. A light hand roller completes the leveling off of the brick surface to true grade. This method of construction has one advantage over that followed in the vicinity of Paris, Ill., this being the elimination of the somewhat expensive dry mix consisting of sand and cement.

DANVILLE BRICK COMPANY EXPERIMENTS

In order to give Mr. McArdle's ideas a practical test, the Danville Brick Company, at his suggestion and under his direction, constructed an experimental brick pavement, 200 feet long and 15 feet wide, of monolithic construction, divided into four sections of 50 feet each. This pavement was laid on one of the heaviest traffic roads immediately adjoining the city of Danville. These four sections can be described as follows:

Section No. 1—A four-inch brick on a 1:3½ cement mortar base, one inch thick at the sides and 2½ inches at the center. The total thickness of the slab is 5 inches at the sides and 6½ inches at the center.

Section No. 2—A four-inch brick on a gravel-concrete base mixed 1:3½:6, which is 2 inches thick at the sides and 3½ inches at the center. The total thickness of the slab is 6 inches at the side and 7½ inches at the center.

One of the Most Commendable Features of the Vermilion County Monolithic Brick Roads Is the Workmanlike Manner in Which the Materials Are Distributed. Maximum Efficiency and Speed in Construction Are Thus Obtained

Section No. 3—A three-inch brick on a gravel-concrete base mixed 1:3½:6, which is 3 inches thick at the sides and 4½ inches thick at the center. The total thickness of the slab is 6 inches at the side and 7½ inches at the center.

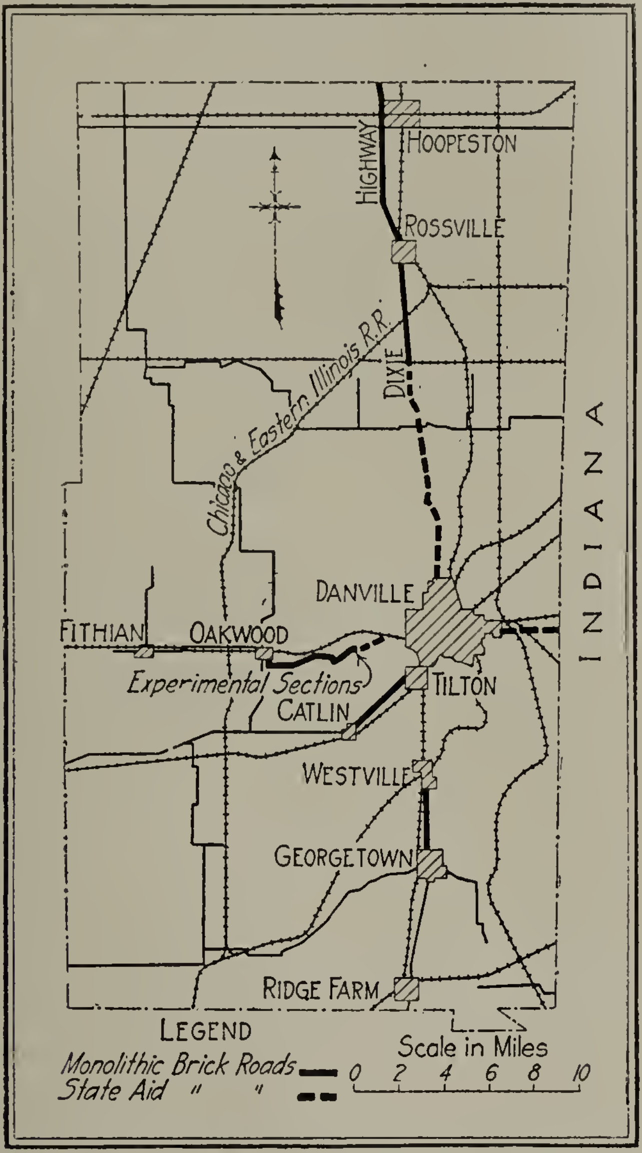
A Section of the Tilton-Catlin Road in Vermilion County, Which Was Completed This Year and Which Was Laid Directly Upon a "Green" Concrete Base

Section No. 4—This was laid the same as No. 2 except the brick were placed lengthwise instead of crosswise. On all of these sections, except No. 3, a header course of full size brick were laid for curbs. This experimental road was completed on October 25th and was thrown open to traffic on November 22nd, 1915.

These sections of brick pavement embody the original idea of Mr. McArdle, namely, the placing of brick directly on a concrete base. It is the only road that we know of which is constructed in this way. This sample pavement should demonstrate the practical utility of a properly cement-grouted brick pavement on a very thin base.

The expense of building this experimental road was borne partly by the Danville Brick Company, of which Harvey C. Adams is president and F. W. Wood plant manager, and partly by Vermilion county; the former furnished the gravel, labor and brick, while the latter donated the supervision. In addition, Danville township furnished the cement.

After almost a year of service, this piece of road is in excellent condition, there being no sign of failure at any point. The pavement was laid on a piece of road receiving heavy traffic from coal mines and at the edge of a soft gravel road which, in the spring, is little better than a series of mud holes, from which the traffic bumps up on the pavement, while in the summer, the surface of the gravel road is high above the brick and the traffic drops down upon the edge of the pavement. In building this road the concrete was placed just as wet as possible without running at the edges, struck off with a template but not tamped and the brick laid and grouted immediately.



Road Map Showing the Extent to Which Vermilion County Is Constructing Its Highways of Brick

Before passing from the discussion of this experimental pavement, it is no more than fair to say that Mr. Adams of the Danville Brick Company is to be commended for his progressiveness and broad-mindedness in being willing to invest a large sum of money in the experiment. His judgment, however, is being vindicated and, if the road continues to hold up in the years to come as it has during the past twelve months, there will be little doubt but that he is right in his idea of how a brick road should be built.

DESIGN OF VERMILION COUNTY BRICK ROADS

Of this system of 166 miles of hard roads being constructed by bond issue in Vermilion county, says "Engineering Record," for which contracts were let last spring, about 25 miles are of monolithic brick construction. The pavement, 10 ft. wide, is constructed of four-inch wire-cut-lug paving-brick laid directly upon a fresh concrete base 4 in. thick at the sides and crowned 1 in. On each side of the pavement a strip of macadam 3 ft. wide is to be laid, and beyond this an earth shoulder 7 ft. in width, making the total width of roadway 30 ft.

Approximately 11½ miles of this type of construction are along the Dixie Highway, running from the northern boundary of the county southward, meeting a fifteen-mile stretch of state-aid brick road, so that the entire length of the Dixie Highway thru the county will be paved with brick. The other sections of monolithic brick road are located as shown on the map. The 3¼ miles between Tilton and Catlin are completed, three miles between Georgetown and Westville are under construction at the present time, while two miles of the work near Hoopeston are nearly finished.

HANDLING MATERIALS

In the construction of the Tilton-Catlin road the pioneer work was done. All objections to this method of construction were met and overcome, and it was established as a practical, economical, and altogether successful pavement. As is often the case with new work, inefficient methods were as first employed, but soon discarded for better and cheaper ones. The same contractor, the Granite City Lime and Cement Company, also obtained the contract for the work near Hoopeston, and the construction there consequently received the benefits of the experience gained on the previous work at Catlin.

In the work near Hoopeston, the sand and stone are unloaded from cars at the construction camp by clamshell bucket and crane, and dumped into elevated bins, whence they are loaded into 1½-yd. side-dump cars for hauling to the road. The brick are unloaded with tongs and placed directly into small cars, operated on a 2-ft. gage industrial track laid along the side of the subgrade.

Over this track the concrete materials are hauled to the road by dinkey engine and dumped upon the center of the subgrade. The sand and stone are placed in alternate piles in this order: Two cars stone; two cars sand; two cars stone, and one car sand. There are thus approximately 7.5 yd. of sand and 13 yd. of stone in every 100 lin. ft. In this way the materials are quickly placed so that the wheelers may operate from either side of the piles.

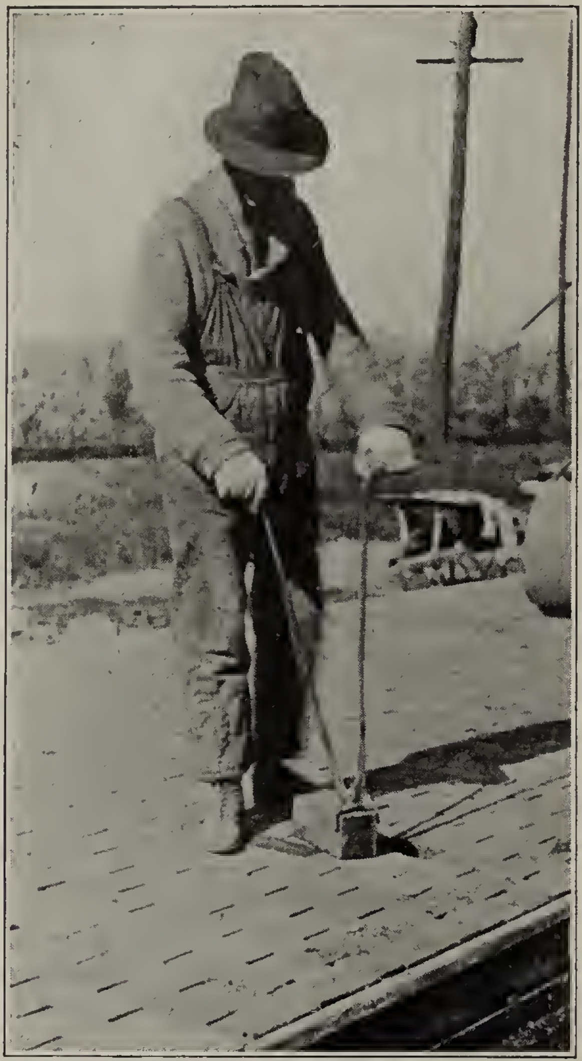
The steel forms are set 1,000 ft. or more in advance of the mixer. Thus, a very good line can be maintained with little difficulty. Six-inch steel forms are used. They have a two-inch strip of wood bolted to the bottom, enabling them to be utilized on other types of hard roads of less thickness. Before the concrete base is placed, the faces of the forms are greased with a low-grade oil to insure a smooth surface toward the pavement and prevent the grout from sticking to and roughening the forms.

BRICK AND CEMENT

The brick are stacked fourteen in each course along the side of the road, being placed there with tongs from the small cars, in such order that they may be laid in the pavement with minimum confusion.

The Old Type of Box Grout Mixer Is Being Used on a Good Many of the Vermilion County Roads, but Some of the Contractors Are Adopting the Small Gasoline-driven Mixer As Being More Efficient and Productive of Better Work

Whenever possible the cement is handled directly from the cars to the mixer, moving the cars ahead when necessary.



There Must Be No Delay in Culling Out the Imperfectly and Improperly Laid Brick on the Monolithic Type of Road

When, however, a clear track is needed for hauling shoulder stone and other material past the mixer to the completed pavement, the cement is unloaded on racks.

The cement is furnished by the county, and in the work a 2 per cent. variation from a standard calculated amount is allowed, all in excess of that amount being paid for by the contractor. In actual work the cement consumption usually runs within these limits.

CONCRETE

A one-half-yard mixer is used. It is not run directly upon the subgrade but on three-inch oak planks, having ⅜-in. bolts running horizontally thru them to prevent their splitting and breaking away under the heavy load.

The concrete used in the base is of 1:3½:6 mix, using 1½ to ½-in. crushed stone and sand graded from ¼-in. down. It is of a slightly quaky consistency, is dumped directly from the mixer to the dampened subgrade, spread out between the side forms and struck off to the proper thickness and crown by two templates weighted down with sandbags and drawn forward by the mixer as it moves ahead.

A Paving Gang at Work. Note That the Culler Follows Right on the Heels of the Setter, While the Batter Does His Work Just as Quickly as Each Course Is Completed

At first only one template was used. This was made of two 2x10 in. oak planks placed vertically 10 in. apart, with suitable bracing between. The lower edge of these planks was cut to a 1-in. crown and faced with a strip of iron. Rollers were fastened to each of these planks for movement along the form. This template was not satisfactory, however, for altho well weighted down the concrete often became piled up in front of it as it was being pulled ahead, causing the rear face to rise and leave a high place in the concrete. This, if not removed by a second dragging of the template, would have caused a wave in the pavement.

Therefore, a second template, having the crowned faces 2 ft. apart, was devised. This was supported on the forms by runners 3 ft. long, faced with iron and curved upward at the front end. This template acts as a check on the first one, taking off any high places and filling in the low ones, if any. A new steel template is now in the course of preparation which will have three faces placed about 1½ ft. apart, the rear two being tilted slightly so as to smooth down and compact the concrete. This template will be pulled along the form on 7-ft. runners, projecting a foot or more in front of the front face.

Runners are used on the templates instead of rollers in order to eliminate any irregularities in the surface or at the joints of the forms. Rollers drop into any depressions, leaving the concrete with the same contour as the surface of the form. They also concentrate the weight of the template, tending to make irregularities in the forms, especially at the joints, while the runner distributes this weight over a large area. Instead of having the same crown as the finished pavement, the faces of this new template will be crowned 1½ in. to allow for more compacting of the concrete and for a greater depth of embedment of the brick, while still maintaining a final crown of 1 in.

After the template cuts off the concrete to the desired crown, the concrete is tamped with a crowned tamping template. This template is made of two 2x10-in. planks placed vertically, between which is placed a 1x6-in. strip extending diagonally upward and outward from each end, and containing at the upper end a handle for moving the template up and down. The bottom edges of these planks are crowned 1¼ in., similar to the dragging template, and have a 1x10-in. strip nailed to them as a tamping face. The upper part of the planks extends out over the edge of the form, while the lower part is cut in to the width between the forms, the depth of cut being the distance desired between the concrete and the top of the form.

The template is operated with a vertical tamping motion by two men. A thin coat of mortar is thus flushed to the surface, and upon it the brick are laid, and rolled to a

(*Continued on page* 834.)

The SCIENTIFIC CONTROL *of the* FACTORY

Part II. The Remedy—Wherein is Shown That the Way to Cure Present Inefficient Supervision is by Proper Planning and Scheduling

By Dwight T. Farnham

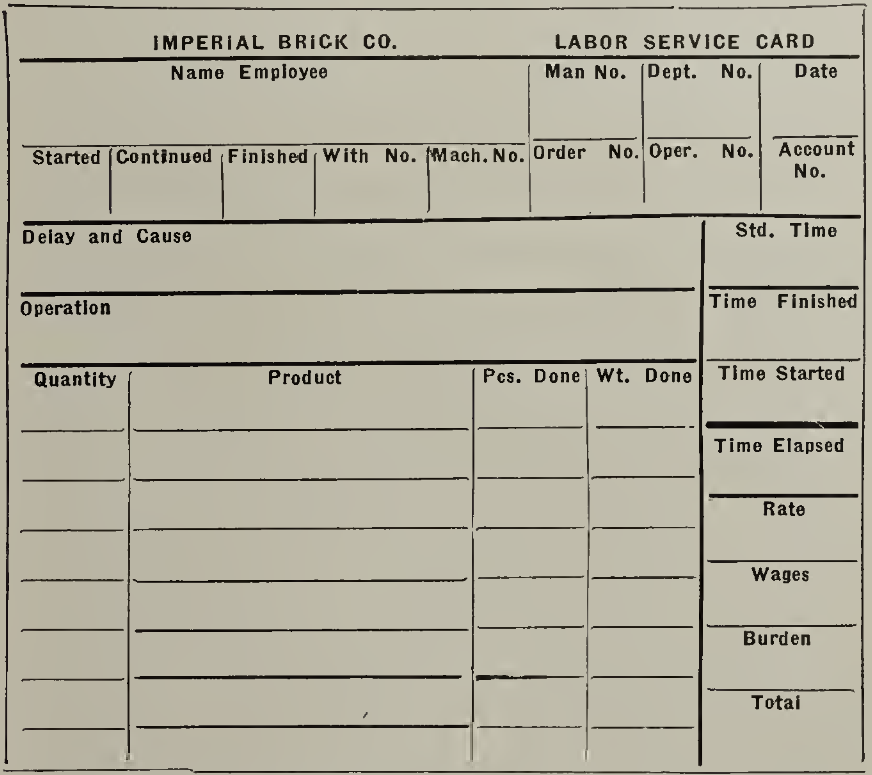
(*Part I Appeared in the October 17th Issue*)

THE DESPATCH OFFICE, which is the physical and visible sign of scientific centralized control, should be located as near the plant's center of population as possible so that whoever is called upon to visit it can do so with the least possible expenditure of time, for which, of course, the company pays. The building may be anything from a shack to an elaborate structure of brick containing laboratories, first-aid hospitals and drafting rooms. The housing is immaterial. The principle is essential. The despatch office is the heart and brains of the factory and must be equipped to insure the operation of the entire plant at the highest possible efficiency at all times.

I. COST SYSTEM

This equipment consists, first, of an adequate cost system. The exact forms used do not matter, nor the names by which the various operations are called. Certain results, tabulated below, are, however, vital:

1. The cost system must be accurate, otherwise its influence in its sphere is no greater than that of any other liar in the community.
2. It must present the facts promptly. Inquests held a month after a murder is committed very seldom result in the capture of the assailant. Similarly, the superintendent who informs one of his foremen six weeks after it happened that during a certain week the cost of operating his department was high, evokes little beyond stock excuses. The foreman, even if there was a good reason for the rise, has forgotten it, and the chance of analyzing the cause and eliminating it is slight when all details are lost in the dim past of six-weeks-old history. It is possible to have accurate manufacturing costs two days after the close of the month. The cost of important operations for the previous day should be on the superintendent's desk by nine o'clock the following morning.
3. It must be complete. The cost of every operation should be shown. The use of such headings as "General Work," "Miscellaneous Supplies" and similar hold-alls should not be tolerated as they encourage inefficiency, and even graft.
4. It must be vital. A cost system should assist, actively, in the administration of the factory. When things go wrong it should shout the fact and demand an immediate remedy. Costs which come to the superintendent alone, covering a single month, may be looked at with polite interest and laid aside. All costs should be arranged in comparative form. Then, when the cost of clay goes up, the superintendent will know it, will investigate and will, if possible, take steps to reduce the pit costs to their former level. When the burning costs falls, the fact must be brought forcibly to his attention, so that he will investigate and make the gain permanent.



IMPERIAL BRICK CO. LABOR SERVICE CARD

Name Employee					Man No.	Dept. No.	Date
Started	Continued	Finished	With No.	Mach. No.	Order No.	Oper. No.	Account No.

Delay and Cause				Std. Time
Operation				Time Finished
Quantity	Product	Pcs. Done	Wt. Done	Time Started
				Time Elapsed
				Rate
				Wages
				Burden
				Total

Service Card Printed in Three Colors Which Allows Each Employe's Time to Be Quickly Distributed in Such a Way As to Insure an Accurate Payroll, Exact Departmental Costs and Easily Procured Job Costs

5. It must be economical. A cost system to remain vital must be frequently pruned. Records which have outlived their usefulness must be discarded. There must be no unnecessary records kept. Forms should be no more elaborate than conditions demand. Otherwise, money is wasted for stationery and for clerk hire. The whole system should be gone over at least once a year and the axe applied ruthlessly to any portion that is not absolutely essential.

II. GRAPHIC CONTROL

This has, in a measure, been covered by the previous section on costs. The continuous follow-up on every department secured by making it possible to compare the cost of an operation for one period with the cost for all other periods by the use of a curve which brings the whole thing before the superintendent at one time and allows the situation to be understood at a glance, is invaluable. When, in addition, the standard cost of every operation has been scientifically determined and the curve shows just how nearly the actual accomplishment approaches this standard, a spur is provided which insures the operation of that plant at the highest possible efficiency at all times.

III. THE EXCEPTION PRINCIPLE

We have already spoken of the value of having the superintendent free to devote his time to technical and other problems. It is upon the despatch office that he depends to sound the warning bell. The routine of the factory is taken care of by the chief despatcher, who keeps in touch with all the details of manufacture. If the superintendent does not hear from the chief despatcher to the contrary, he is safe in assuming that the factory routine is going satisfactorily and that he is free to consider ways and means of increasing the quality of the product and of lowering the cost of production. In other words, everything is all right "except" what is brought to his attention by the central control office.

IV. PLANNING

Ordinarily, about a plant, trouble is dealt with when it arises. As a result, running a clay factory has been described as "just one thing after another." This will always be the case as long as the possible troubles are not figured out beforehand and steps taken to prevent their arising.

Take, for instance, the usual method of setting a kiln. The shop foreman, who is generally a much harrassed individual, is sought by Bill, one of the head setters and, about eleven o'clock in the morning, is told that the gang is waiting to set another kiln. He tears himself away from the drying problem he is considering long enough to tell Bill to fill kiln No. 14 with eighteen, ten and four-inch pipe (or with bullnose, standard and shape brick numbered X24, Z23, H118 and M41,823, as the case may be) and returns to the consideration of whether the steam boss was drunk last night or whether the clay boss used the wrong mix to cause all that cracked "stuff." In about fifteen minutes Bill comes back and tells him that the drawing crew haven't finished drawing Kiln 14, or that the masons have the floor all torn up. The shop foreman leaves his drying troubles then and goes down to see about it. Meantime ten or fifteen men have stood around and waited twenty or thirty minutes at a cost of two or three dollars in wages and as much more in lost output, while the thing is being threshed out. He finally tells Bill to have his men help the drawing crew clean up the No. 14 and the two crews fall all over each other for half an hour and lose four or five dollars more for the company getting things going again.

BONUS TICKET

Imperial Brick Co.

NAME...................... Clock No......... Date..........

Amount of Bonus $......... Earned for period ending.........

Standard hrs. / Actual hrs ....% Efficiency.

To earn more, work more efficiently.
Study your movements to increase your efficiency.
Every move saved means more money on this ticket.

Bonus Ticket. This Card Informs Each Employe at the Close of the Bonus Period Just How Nearly His Work Approached the Standard Set and Just How Much Additional Pay He Will Receive in Consequence

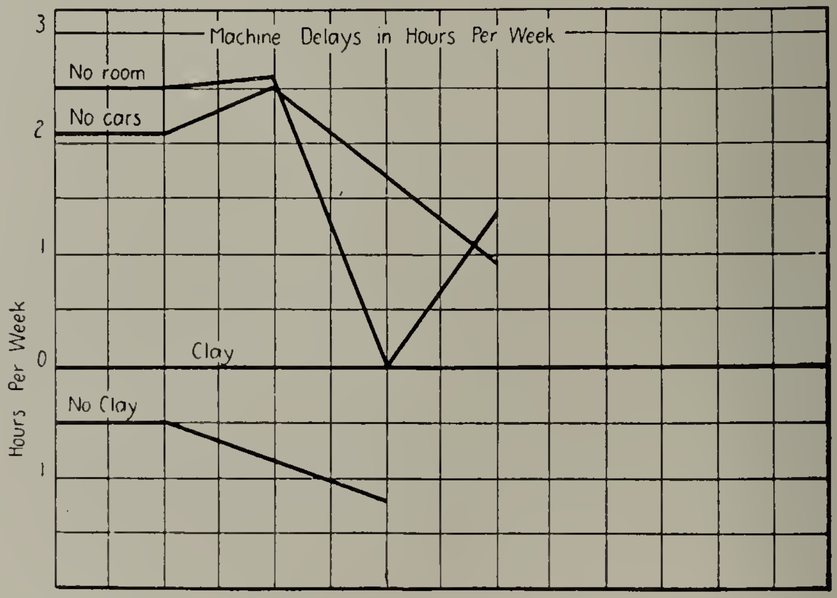
At times, the largest part of the foreman's time is spent in "finding something for his men to do." Just consider that a minute—finding something which his men may waste time on until there is a demand for their services—*finding some way to throw the company's money away!*

MORE TIME AND MONEY WASTED

Presently, Bill gets started. An hour later he returns. "Those eighteens aren't dry enough to set" or "there aren't enough tens." Then follows more "alarms and excursions," the shop foreman and Bill combing the floors until some more tens are found and the eighteens are pieced out with twenty-fours which, incidentally, means that the kiln must be burned on a twenty-four-inch schedule, thereby wasting coal and increasing the kiln turnover time. Meantime, of course, the crew has been waiting and more of the company's good money thrown away.

Despatch Board in the Central Control Office. Note the Service Cards in the Racks on Either Side of the Window

This may seem an exaggerated case but, as a matter of fact, it is the kind of thing that is going on all the time even in comparatively well managed plants, as anyone who has been intimately connected with their management knows. And it is only one example of many which might be cited—of kilns not cool enough to draw when wanted, of insufficient clay in the bins and the fact discovered when in the midst of a heavy tonnage run and a hundred other things—all of which mean interrupted output, waiting crews and increased operation costs.



Graph Showing Effect of Four Weeks' Planning and Despatching in Reducing Interruptions to the Output in the Machine Room of a Brick Plant

THE REMEDY

The remedy, of course, lies in proper planning and proper scheduling. If the burning and cooling had been standardized—with schedules for each sized pipe, or for different sorts of brick or terra cotta shapes, and with a reward in the form of bonus to the burning crew for burning and cooling in standard time—it would have been possible for the chief despatcher to have predicted ten days ahead to within half a day when each kiln would be ready to draw. With this knowledge in his possession he would have scheduled the drawing of each kiln with a view to having a kiln always available. With the drawing standardized and the crew on bonus, he could predict within half an hour of just how long it would take to draw any sort of ware from any kiln. He would then have made a tentative schedule showing which kilns would be available the next morning, arranging for a choice, if possible.

He would then have consulted his records and would have determined what size ware could be set to the best advantage and his planning sheet to see what ware was available. At four o'clock in the afternoon at the regular foreman's meeting he would have stated that there was plenty of twenty-four-inch pipe on the floors, that they needed that room two days later for a run of thirties, that by setting the twenty-fours with fifteens, eights and threes, of which they had plenty, they would get the greatest number of tons in the kiln (and would consequently burn off with the least coal per ton of ware), that kiln No. 17 would be repaired and ready at ten o'clock in the morning, that the setting crew working on kiln No. 10 would be finished not earlier than 10:30 o'clock the next morning and that, therefore, unless the superintendent or one of the foremen had some objection, he would schedule kiln No. 17 for Bill and his crew the next morning. In this way, all the inefficiency described would have been avoided, discipline would have been maintained and production costs held at the minimum.

CAN PLAN WORK QUICKLY AND MEET CONTINGENCIES

The chief despatcher, once he has been provided with proper tools and records, can, in a comparatively short time, plan the operation of the factory twenty-four hours ahead. In doing this he can provide alternate courses to follow in case of necessity and have ready at all times a detailed plan of action which can be carried out without a hitch.

You all remember the story of the great Von Moltke who, lying asleep when the news of war with France in 1870 was brought him, simply rolled over and said:

"You'll find the plan of campaign in the third drawer of my desk."

The plan was followed and, only a few months later, Germany made peace on her own terms.

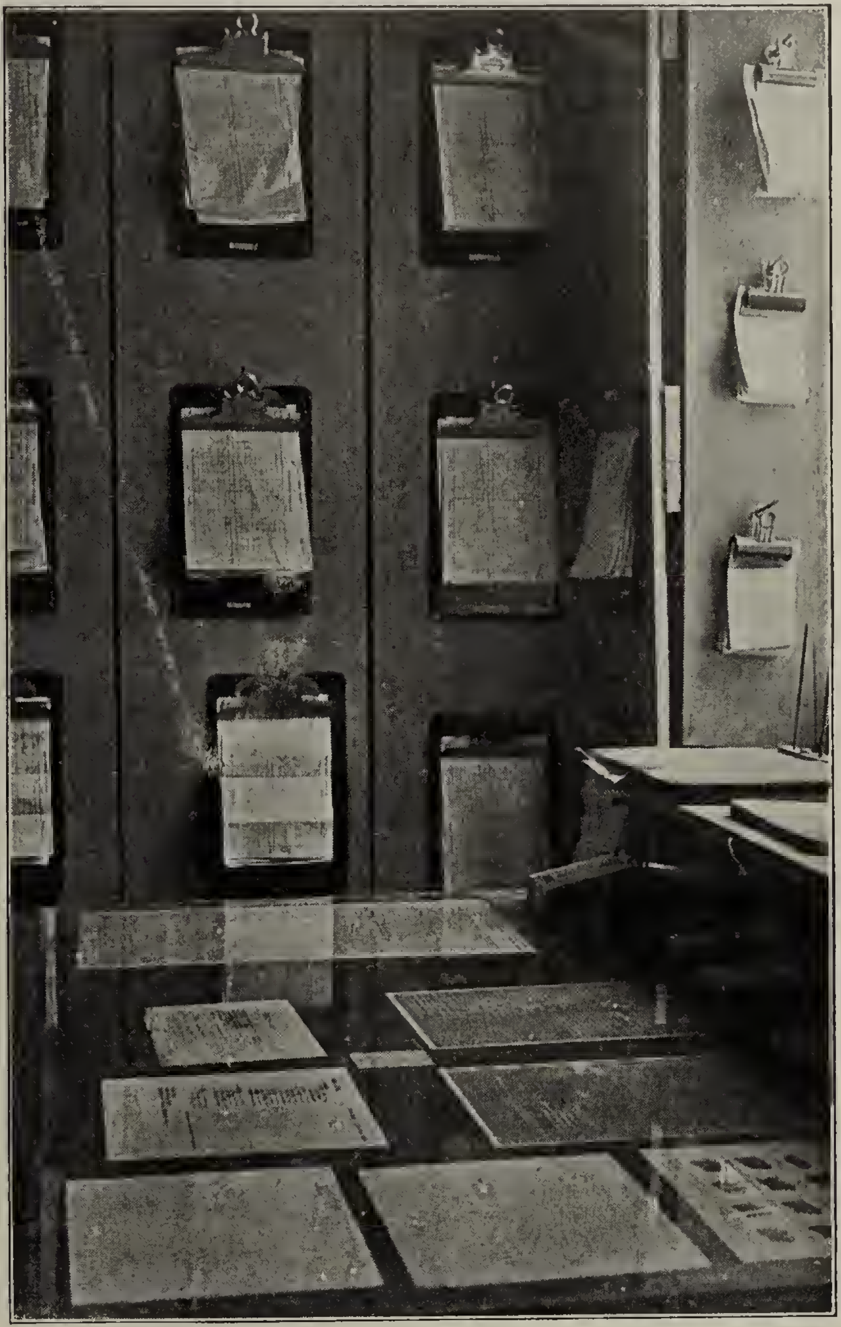
The problems of brick yard operation are certainly no more intricate and the chief despatcher, with his planning sheets spreading all in plain view before him, is prepared to meet arising contingencies much better and much more quickly than the foremen depending upon their memories and issuing orders (which may easily conflict with orders issued by others) wherever the man in search of instructions may find them.

A book could easily be written on "Planning" and the advantages to be gained therefrom. Enough has been said, however, we believe, to illustrate its value both in eliminating inefficiencies and in freeing the superintendent from detail. The installation of an effective planning system involves a careful study of the conditions prevailing in each particular plant. The equipment must be adequate without being extravagent. The chief despatcher must be carefully selected and carefully trained, and the foremen must be taught to take the fullest advantage of the assistance offered. Under such circumstances, the saving is sufficient to cover the trouble and expense many times over.

V.—DESPATCHING

This feature of centralized control is closely allied to planning. The planning department determines what is best to be done and places the result of its labors before the factory executives for criticism, approval and execution. The despatching department notifies these executives in case of a hitch in carrying out the plan adopted.

In a clay plant the planning and despatching departments are usually consolidated under one head and, in some cases, the duties are performed by one man. In either case, the work consists largely in checking up the progress of the adopted plan as it proceeds, of securing a clear track for it and of calling for assistance from the proper executive in case of obstruction. It is the duty also of the chief despatcher, who is on bonus, to see that all equipment, tools material and everything tending to the smooth and uninterrupted carrying thru of the plan adopted is ready when wanted.


Chief Despatcher's Desk, Showing Various Records, Standard Practice Instructions, Schedules and Graphic Control Charts

VI—GENERAL

Various other matters are taken care of at the despatch office. Anyone wishing supplies ordered, goes there to make out his requisition . The chief despatcher sees that it is in proper form and that it has been properly authorized before turning it over to the purchasing department. He watches the distribution of charges, provides men for crews which are short handed, rather than allow the foreman, who needs a man, to go begging from crew to crew, or to ask the superintendent to hunt one up for him. The chief despatcher schedules work for the repair crew and sees that the work is not released until the material is on hand. He schedules work for the extra gang, making sure that the work done is important and that the extra gang is as small as is compatible with efficient operation. In fact, his duties are legion and he earns his salary and his bonus if any man about the factory does.

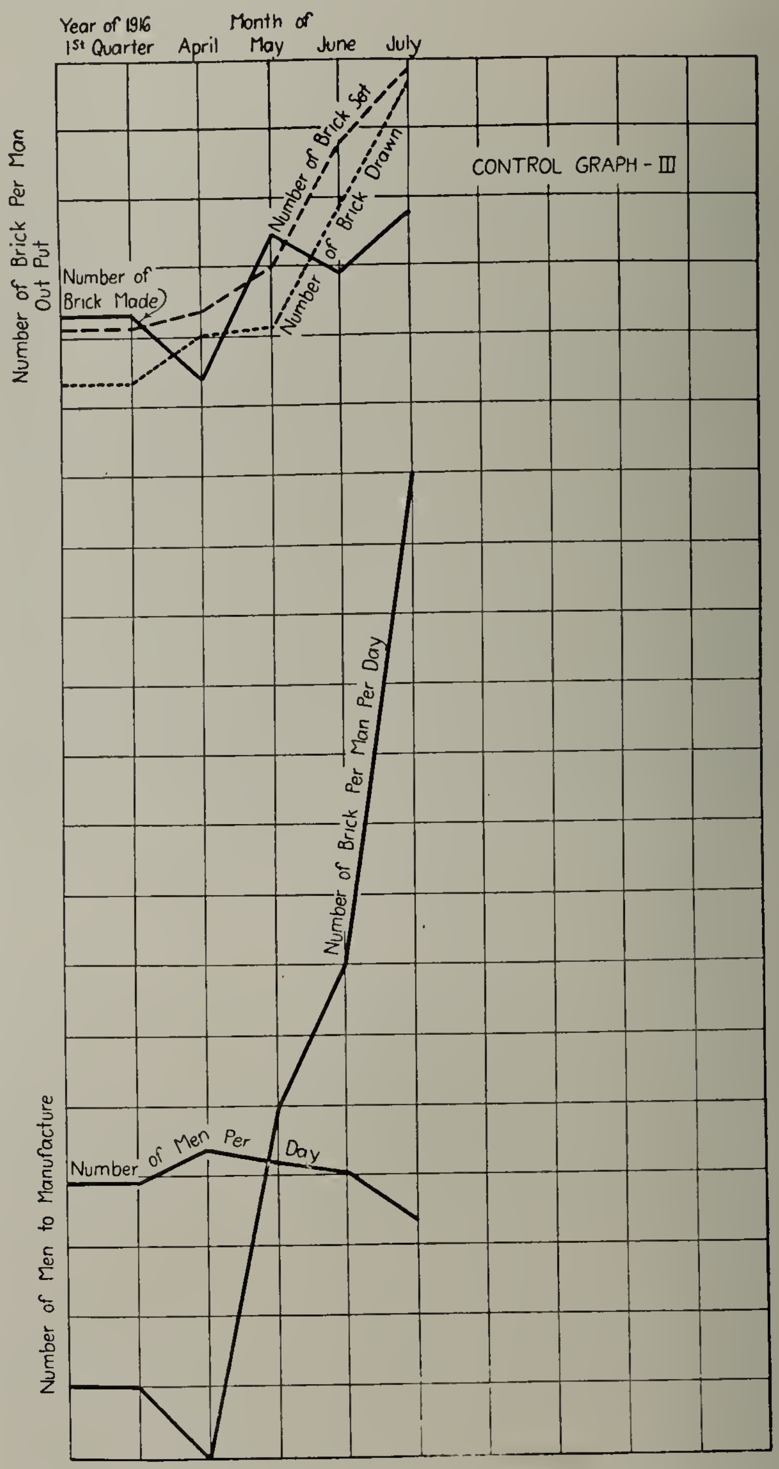
SCIENTIFIC CONTROL FOR THE MANAGEMENT

Once the factory is under scientific control the work of the general manager at once becomes infinitely easier. The exception principle frees him from an immense amount of detail and the time so gained is at the disposal of the sales department and free for the consideration of those larger problems of business which determine its success or failure.

The theory is this—the records, graphs, and so forth, with which he is provided show him each day, each month and each year, just how nearly the factory is reaching the standard set in terms of efficiency percentage. If his control sheet shows him that the day before the factory was operated at ninety-eight per cent. efficiency, he may feel free to depart for the golf links to recuperate from the strain of the big deal he swung the night before or to take time to study certain selling problems which need attention.

If, on the other hand, the factory's efficiency fell to eighty-eight per cent. he will turn over to his next sheets which are arranged in the order of their importance, and find perhaps that nine of his departments ran over ninety per cent. but that the tenth fell to sixty per cent. He has then put his finger on the exact trouble and can investigate the circumstances responsible for the drop in the total efficiency. He avoids wasting his time digging thru a lot of departments which do not need his attention, and so saves nine-tenths of his time for better and more profitable uses. Actually, it is perhaps not as simple as this but that is the principle of the thing. The graphs in his Administrative and Executive Record give him a grasp of operating conditions in sufficient detail each morning to allow him to use his time to the best advantage. Once a month the operating, selling and administrative costs are entered in such a way as to make a thoro analysis of the business possible and changes in policy can be made fearlessly in the light of full knowledge.

The same system of control has been applied to the selling and the executive who is so equipped may assure himself that there is nothing of importance that can escape his attention. Where the bonus reward has been applied in all departments he may be sure that every man in his organization be he laborer, salesman or clerk is looking upon the company's business as his own business and, according to his ability, is doing his best to make the earnings of the company all that the stockholders desire.



The Effect of Four Months of Centralized Control Upon the Number of Brick Per Man Per Day Produced. Same Kiln Capacity in April as in July

HOW NEW YORK FEELS *about its* FUTURE PROSPERITY

It may or may not be quite the proper thing for men to be going about these days telling each other that the country is going or will go to the bow-wows. It depends altogether on the viewpoint, according to "Brick and Clay Record's" New York correspondent. In a presidential campaign such things used to go, if you could "get away with it," and it is the truth that some folks used to have no difficulty in doing the getting away act. But times have changed. People do their own thinking and all that politicians of the Tom, Dick and Harry stripe say is taken with a grain of salt. Electing a president is a serious business, of course. There is no getting away from that and in New York they are as hard at the job as elsewhere in the U. S. A., but just the same nobody is running around howling about full or empty dinner pails. The cost of living is high. Ditto to the cost of building. It is noteworthy, however, that no one is predicting that living or building is going to be a whit cheaper, no matter who is elected.

"In the metropolis of the United States, realty is beginning to reflect the general business prosperity," says one authority. Within the past fortnight some big realty deals have been made. The records show in fact that million dollar deals are the order of the day. There have been times when, at this stage of a presidential campaign, the "big money" deals were in Wall street betting circles. They are doing some of it in 1916, of course, but the newspapers are busier chronicling real estate transfers involving millions. Money for real estate is plentiful and the rate is low. The Mutual Life Insurance Company, for instance, put out $3,000,000 a few days ago on a mortgage at 4½ per cent.

Leaders in all branches of the market express optimism. Borough President Marks, in talking to the Real Estate Association of the State of New York, said recently: "Real estate in Manhattan and thruout the entire city is due for early improvement in values. New York is now the world's greatest city. There is no better real estate in the world than New York real estate. New York in reality is five great cities. Manhattan is larger than Chicago, Brooklyn than Philadelphia, Bronx as large as Detroit, Queens larger than Minneapolis, and Richmond larger than Salt Lake City. It may be fairly called the terminal of every American railroad, 290,000 persons daily entering and departing on passenger trains. As a port, it receives and sends out annually 27,000,000 tons of freight in its foreign commerce, amounting to $2,722,000,000, which is more than seventy-four per cent. of the country's total. New York is literally the greatest city in the world with wonderful opportunities for further development."

Current prosperity is taking permanent form. This is indicated by record breaking construction of factories and business structures. Experts say it is laying foundations for a big real estate boom.

Take the item of brick, for example. For the last week in October Hudson River common-brick was in strong demand, despite the recent increase in price. With the quotation $7.75 to $8.00, a dollar higher than a year ago, forty-six cargoes were distributed. Raritans are as scarce as "hen's teeth." Instead of there being a let up because of approaching cold weather, the opposite has been the case and this in the face of labor troubles, strikes and increasing costs all along the line.

Greater New York has been busy for two years with immense business construction plans. In the week of October 14th to 20th plan filings totaled $2,749,300, while in the corresponding week of 1915 the filings amounted to only $59,568. Alterations for the same period in 1916 footed $291,675, or nearly $100,000 more than for the corresponding week of last year. For the period January 1st, 1916, to October 20th, there were plans filed for 512 new buildings costing $106,238,945, as against $53,044,188 for 393 buildings in the same period for 1915. Alterations in 1916 amount to $16,833,523 as against $11,954,055. It will be noted that these figures are for Manhattan borough alone. Furthermore, careful inspection of the records in detail reveal that most of this work has either been completed, commenced or is contemplated seriously enough to have passed the "paper" stage.

Summed up then there is no getting away from the prosperity that is with us. Prices are high, to be sure, with no apparent restraint. On the other hand, they are going up by leaps and bounds, but despite this, despite the pre-election scares and "hot-air," the U-boat dangers, peace rumors and what not, the most extraordinary condition of affairs in commodity prices since the Civil war actually sees a bigger, a better and a brighter future for the world's greatest city and the country in general in real estate and building.

⁂

American Road Makers to Convene in Boston

The fourteenth annual convention of the American Road Builders' Association will be held in the Mechanics' building, Boston, Mass., during the week beginning February 5th, 1917. The program, now in course of preparation, will include papers and discussions on the subject of road and bridge building and street paving by the foremost authorities in the United States and Canada.

In connection with the convention, and in the same building, will be held the eighth annual Good Roads Show. This exposition will include exhibits by the leading manufacturers of machinery and materials used in road and paving construction and maintenance.

The coming show takes on added importance because of the enormous sum of money appropriated under the recently enacted Federal Aid Law and the additional large amounts to be spent for road building by the various states and smaller units of government.

⁂

New U. of I. Ceramic Building to Be Dedicated

The new ceramic engineering building of the University of Illinois, Urbana, Ill., is to be formally dedicated on December 5th and 6th, 1916. The occasion will be one of great interest to the clay products manufacturers of the country. It is expected that the exercises will be attended by many representatives of architectural, structural, mining, geological, chemical and manufacturing interests. In connection with the dedication exercises an industrial conference will be held, in which a number of topics of interest to the ceramic engineer and clay products manufacturer will be discussed by well-known experts.

⁂

Philippine Moros to Manufacture Tile

The latest step in the advancement of civilization among the Moros, a tribe of the Philippine Islands, is a plan to teach these people the method of manufacturing tile. Many Japanese tilemakers will be induced to locate in the vicinity of schools and settlements for a period of at least six months and teach tilemaking. It is hoped that the Moros will soon learn to manufacture the tile as cheaply as it is done elsewhere. These people at present, like other natives, use straw and thatch as roofing materials, a combination that is highly inflammable. The use of roofing tile made of burned clay will materially lessen the fire danger and, when the industry has been developed, will not materially increase the cost of construction.

⁂

"Lone Star" Clayworkers Protest New Tariff

The Texas Brick Manufacturers' Association met in Ft. Worth recently for a business session. The members of the association declared that the Texas brick industry would be placed at the mercy of interstate competitors under the new tariffs issued by railroads in compliance with the Shreveport rate case decision, provided the decision is allowed to stand. A telegram was sent to the Interstate Commerce Commission asking for suspension of the tariff, known as Fonda's tariff, 2-B, until Texas interests can be heard. It is claimed that Oklahoma brick manufacturers are given an advantage over the Texas companies by this order. The tariff gives Oklahoma manufacturers a lower rate than those who have their plants in Texas.

⁂

A distinct shock came to his many friends when, on October 23rd announcement was made of the death of F. W. Bennett, president of the Wellington Machine Company of Wellington, Ohio. Mr. Bennett had been ailing for some time, but his death was quite unexpected.

From TOGO *to* TOGO

In Which an "Uncensored" Letter Is Used as a Means of "Springing" a New Method for Cleaning Out Kiln Bottoms on Brickmakers, With Apologies to Wallace Irwin

By William A. Butler

¶ *Note: This letter was written by one, Kamura Togo, to his brother Kodda. It was sent from National City to Milpitas, Cal. National City, situated on the Bay of San Diego, is tempered by the sweet South that breathes upon a bank of desert cactus, stealing and giving heat waves, while Milpitas, located on San Francisco Bay, is refreshed by the bracing zephers which sweep over the high coast of Northern California thru the gap known as the GOLDEN GATE.*

For Kodda Togo from Kamura Togo,

My Dear Brother:—Since last to me you have written, I have bot thru installments of Cousin Asano an honorable machine called Vacuum Sweep. Vacuum sweeping are ingenuous device of inventful American. It are used for removing from house, hall and doorstep unwelcome guests, as such are ants, bed bugs, road dust and peanut shells, and are warranted so fool-proof as removing fleas from dog's back without taking off hair or otherwise disfavoring said canine. To set vacuum machine in high speed motion it are necessary to out-twist electric globe tungston and connect vacuum spark plug to electric fixture with dexterous movement similar to ju jitsu.

About one week ago in my estimation on vacuum sweeping I figure it out and prove it backwards, up hill in Japanese, that machine are ½ pd. for. with bal. due=½. I owe ½ and I own ½ and ½ of what I owe are ½ of what I own. According to the statute of Liberty enlightening World with the scale balances and the English grammar which says that negatives in the English destroy everything. . . . I owe nothing, but Cousin Asano will not talk to me in English about it, he says I still owe one-half yet.

KAMURA GETS A CALL TO ACTION

As I sat with philosophic pose trying to unfigure the problem I am startled to gladness hearing impatient clatter from telephone, like S. O. S. call for help. With pleasant smile and fleetness of both feet, I pussy-foot to telephone, and as I unhitch the talk from the hearing end I smilingly bow with outstretched other hand like Sesue in Madame Butterfly (motion picture), and say:

"Hello. This is Kamura Togo." While listening, I hear lady's honorable voice to say: "Hello, is that Togo? This are Mrs. Tile-House of San Diego, and I ask can you clean out remove disinfectantly such undesirableness of dust accumulation that cling to the premisis." "Yes, lady," I rapid fire, I with machine will be on hand in the tomorrow morning with 9 o'clock promptness."

"Very well, Togo," she says as she disengaged herself from telephone.

With joyful impatience I awake early in the morning, leave my bed and board, and run with jinrickshaw swiftness to San Diego, over good but rain-bitten road. After several hair breath retreats from escaping Ford autos, one of which remove piece from trouser leg, I begged to arrive at the home of Mrs. Tile-House, with severe bell ringing.

RECEIVES JOB TO CLEAN OUT KILN BOTTOM

"All right, Togo, just on time," she rapid-fire on high gear. "You just get business with your Mr. Vacuum and clean them out, the undesirableness of dust, infantile paralysis and pencil shavings, and when you are finish to stop, go over to the kilns of Mr. Tile-House and remove surplus sand, bat bricks, cholera infantum and June bugs from beneath crown floor which are kiln basement."

"What are kiln?" I enquire information-like. "Oh" she replies with stop, look and listen pose, "seeing that you are misinformed as to what are kiln, I will narrate to you the following: 'Kiln are overgrown bake oven for disinfecting brick or tile with oil and steam before cremation-like burn. Where coal is cheaper than gasoline oil, coal is used to heat the air and the heated air passes thru the brick until they are cooked.'" "Ah, I understand," I say. "You must have air to burn or you could not burn brick in vacuum." *"Can* that high-brow stuff," says Mrs. Tile-House's half grown man-boy. "You know that kiln are troubled with indigestion of fire-bugs, and there are snake crawlers, scorpions and Bubonic rat-mice in the kiln basement." "Well," I strangle to say with oration of motion picture actor, "my vacuum sweep are innoculate for all contagion and will not respect idle wind which by-pass. And in junction I will ad that Mr. Mahoney of Chicago says that Vacuum Sweep are the card schedule for cleaning kiln bottoms." "Well," from Mrs. Tile-House, "If you mean Mr. Maroney of Chicago, he are truthfully honest, besides he has offered to give help assistance to the Mikado of Germany should he need Irishmen." This from Mrs. Tile-House, pridefully.

LEARNS KILN IS BUILT ON SAND

With low bow, wherein I do not show my neutral international suspicion, I move stealthily towards the patient (sick) kiln to clean him. At kiln, I find a mule and wagon attended with a man of Irish appearing behavior. "Are this the kiln oven to clean out?" I seek to implore. "Yes, Jappy, and be careful cautious that you undermine not as kiln is built on sand." "My vac. are bomb proof and are passed by Board of Censor," I retort. "Here you wire tapper," he jaculate "That is heat-recording wire, The other's the light wire." "O I see" say I "That wire has watchmans clock." To connect machine to light wire I climb ladder to top of kiln. With machine in high speed I connect large hose attachment down thru one of innumerable rat holes in kiln basement and pump out small sample of brick, tile, sand and beetle-bugs and booze-bottles.

"Here Togo" say man of Irish appearing behavior, "don't pump below this yard measure stick." "Why—no?, I querry "you see, look" he says "If you poomp out too much sand the kiln will sink down, the roof will topple over and the iron hoop bands will burst with noise of loud explosion like cannon." "Therefore," I advance "the efficiency of the machine are proven by removing not more nor less than yard stick measure." After delivering said pedagogic broadside, I recoil on high to my pump out business.

Mr. Irish-monger again comes over to me like counsel for defense, questioning, "Say, did superintendent ask you the price of pump out kiln machine?" "Why do you seek to inquire?" I beg to ask. "Well" he seek to explain, "every time Company buys new machine or kiln something comes to his house." "What," I ask, "Increase in family? honorable baby?" "NO, no," he exasperate, "If superintendent buys a machine or kiln for the company he receives anything from a phonograph to a piano." "Ah, I see," say I, "but that are graft" I advance with uplifted eyebrow. "Not at all" he say "The brick highbrows tell us that it is CO-OPERATION—EFFICIENCY."

"Then what are graft?" I question pointly. "Listen," he says. "If a Company does not badly need expensive machinery and superintendent buys one for which he receives Ford auto or piano, then, the superintendent are a grafter. If Company badly needs machine and superintendent buys it for Company and receives small present like phonograph it are CO-OPERATION—EFFICIENCY."

"WELL," I say in exclamation pointly, "In Japan, if superintendent are guilty of co-operation—efficiency, he are reduced in rank and are forced to work in clay pit without pay for one year, and honorable phonograph are confiscate." "Say" from me in further askance "Have your superintendent auto, piano and talk-machine?" "GOOD LORD, yes, all of them, but there's the noon whistle I go to honorable lunch." "So runs the world away" I ejaculate as I dis-connect spark plug from vacuum.

DISASTER FOLLOWS IN THE WAKE OF LUNCH

After eating some rice cakes with predigestive relish I take restive position and fall asleep. Presently I see Mr. Vacuum working by himself pumping out sand on high speed. "Who connect the spark plug?" I ask in bewildering excitement with fear surprise and honest sweat on my brow. PUMP—PUMP—PUMP—"Help—Stop it—" I cry. I rush to vacuum. It will not stop. I run for ladder to untwist spark plug, but it has gone. I try to lift out hose connection from kiln rat hole, but it will not move, after terrific ju jitsu pulling at hose.

I then hesitate to break my goodness of machine, so I marathon after kiln ladder with negative results connected with discouragement. TOO LATE—TOO LATE—The sand are piled up in great heap outside of kiln like snow blizard in Siberia, and Mr. Kiln are already sinking. Iron hoop-skirts around kiln are separating apart with loud explosion of Japanese Dred-nots, and alas . . . I am helpless to escape from the anti-Japanese mob-riot without police. "I have not fear and will face war music," I say. So I got at once to Superintendent in a bow with flourish I sputter, in dis-connected voice "I have disfavor . . . to inform you . . . that . . . honorable kiln . . . . . are sinking. "WHAT?" he snappered, with exceeding swear-curses (unmentionable). "You blankedy . . . . . SLANT EYE . . . . blankedly-blank . . . . You are guilty of high treason and shall have trial and punishment at once."

SEIZED AND BROUGHT TO TRIAL

Then two men seize me and tie me hands to feet, carrying me into dry kiln court room for trial.

"You are charged with grave offense against government," says Super.

"We are making roof tile for cover over of new U. S. building at Point Loma and you deliberately destroy kiln." "I are not yet guilty" I grasp. "Stop, he are not to blame," says Mrs. Tile-House, "He does not know better." "Yes . . . he is no more blameless than you are aware of" says my friend of Irish appearing behavior. "I told Togey that kiln are built on sand, same would sink if mined under, and so he are guilty as charged." "Well, sir, what have you to say for yourself?"

"I defy grafter, who receive talk-machine piano and Ford auto for imperfect kiln machinery" I cry in threatening fist shake.

KAMURA SENTENCED TO BURN IN KILN

"You are sentenced to burn up in kiln" he say.

Then I find myself getting hot, with stinging sensation in feet like burning up shoe leather. "My time has now come" I say as I saw Budda with outstretchted arms ready to take me in golden flying machine to Japanese heaven. But suddenly Budda drop me like hot potato. The sting of yellow jacket wasps in my feet increase, and I hear a voice of recent familiarity bellowing, "Here you slant eye, wake up, poomp out the kiln and bate it, g'long now, wake up." I open my eyes to a surprised imagination of Irish appearing man in tones similar to howl of order of honorable carry-hods (union) with information that I sleep for two hours. I look astoundedly at feet, they do not burn, I see ladder to top of kiln, and no big sand pile and are delighted to see hoop-skirts are O. K. and every little thing is alright.

I Hear a Voice of Recent Familiarity Bellowing, "Here, you Slant Eye, Wake Up, Poomp out the Kiln and Bate it, G'long Now, Wake Up."

Budda be glory. . . . . I say as I dog trot back to National City looking at new moon over the top of brewery building.

I have arrived home where I emplore to remain
Yours truly,
Kamura Togo.

KILN ARCHES

One of the Two Winning Papers in the Recent Ceramic Students Essay Contest, Which Covers a Subject of Vital Importance to All Clayworkers

By Earl E. Libman

A Graduate Student in Ceramics from the University of Illinois

IN NO INDUSTRY are scientific principles so woefully ignored as in clayworking, and in no branch of this industry is the result more apparent than in the construction of kilns. When a brickyard needs a new kiln, it is customary to build it as the last one was built, or to copy one used successfully by another plant. Sizes and dimensions are estimated by rule-of-thumb with no thought of making changes to adapt the prospective construction to the peculiar conditions for which it is intended. As most rough estimations err on the side of safety nothing more serious than high first cost results from such rules. There is one particular part of the kiln, however, where excessive dimensions are no guarantee of stability, and that is the arch.

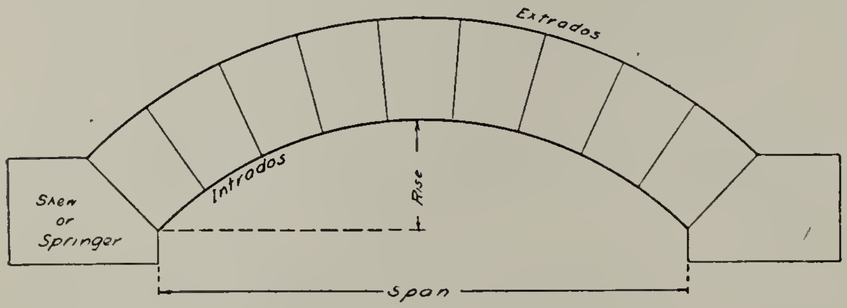


Fig 1

BRICK ARCH ONLY POSSIBLE SUPPORT OF CROWN

When an opening is made in a masonry wall, or a roof is placed over an edifice it is necessary to provide some means of spanning the opening to support the superimposed masonry. Two methods are available in ordinary construction, namely, the use of beams and the use of arches. The beam exerts only vertical pressure upon its supports, while an arch exerts, in addition, an outward thrust. In the construction of kilns, the temperature of which is to be raised to such a height that no metal girders may be used, the only means available for supporting the roof is by the use of arches. An arch is a particular arrangement of blocks of fire-brick (or other material) put together generally along a curved line, in such a way that it resists a superimposed load by the balancing of certain thrusts and counter-thrusts. Before taking up the principles of the arch, it might be well to define the principal terms relating to it.

The distance between the supports of an arch is called the span. The height to which the crown of the arch rises above the level from which it springs is called the rise. The lower boundary of the arch is called the intrados, the upper boundary the extrados. The blocks of which the arch is composed are called voussoirs. The blocks from which the arch springs are called the skews or springers (See Fig. 1). Arches are semi-circular, segmental and elliptical. As the latter form is never employed in ceramic construction, we will limit our discussion to the first two. A segmental arch, as its name implies, is one forming a segment of a circle. It is stronger than the semi-circular arch, but imposes upon its support a greater horizontal thrust. It is the form generally employed in kiln construction.

THE REAL PROBLEM OF THE KILN DESIGNER

It is not possible by means of mathematics, to compute the dimensions of an arch for a certain construction. The best we can do is to decide upon the form and dimensions of the arch that will span the opening we wish to cover, and then investigate the arch we have designed for stability. The problem, therefore, that presents itself to the engineer is not to design the form and dimensions of an arch that will most economically and efficiently bear its load, but rather to determine if an arch of a certain form and dimensions will be stable and safe under its own weight and that of any load that might be placed upon it. There are many rules and approximations to help one in deciding upon the size of the arch to be used, but the best means is to draw one that is pleasing in appearance and conveniently spans the required distance. In deciding upon the rise it is well to take into account the experience of others and one of the many necessary rules may be used. For example, many arches have a rise of one-quarter the span. It must not be forgotten, however, that the use of such rules is no guarantee of safety and that no arch should be considered stable until it has been investigated according to scientific principles and found safe.

FOUR WAYS ARCH IS IN DANGER OF FAILING

There are four ways in which a masonry arch is in danger of failing. These are: (1) By crushing of the masonry; (2) By sliding of one voussoir upon another; (3) By one voussoir or section of masonry overturning about an adjacent voussoir or section, and (4) As a column when the ratio of the unsupported length of an arch to its least width is greater than twelve. Arches generally fail by sliding or overturning. Let us take one voussoir from an unloaded arch and consider the forces acting upon it (Fig. 2). These are, first, the thrust which it receives from the voussoir next above it in the arch ring, second, its own weight, and third, the reaction from the voussoir next below it.

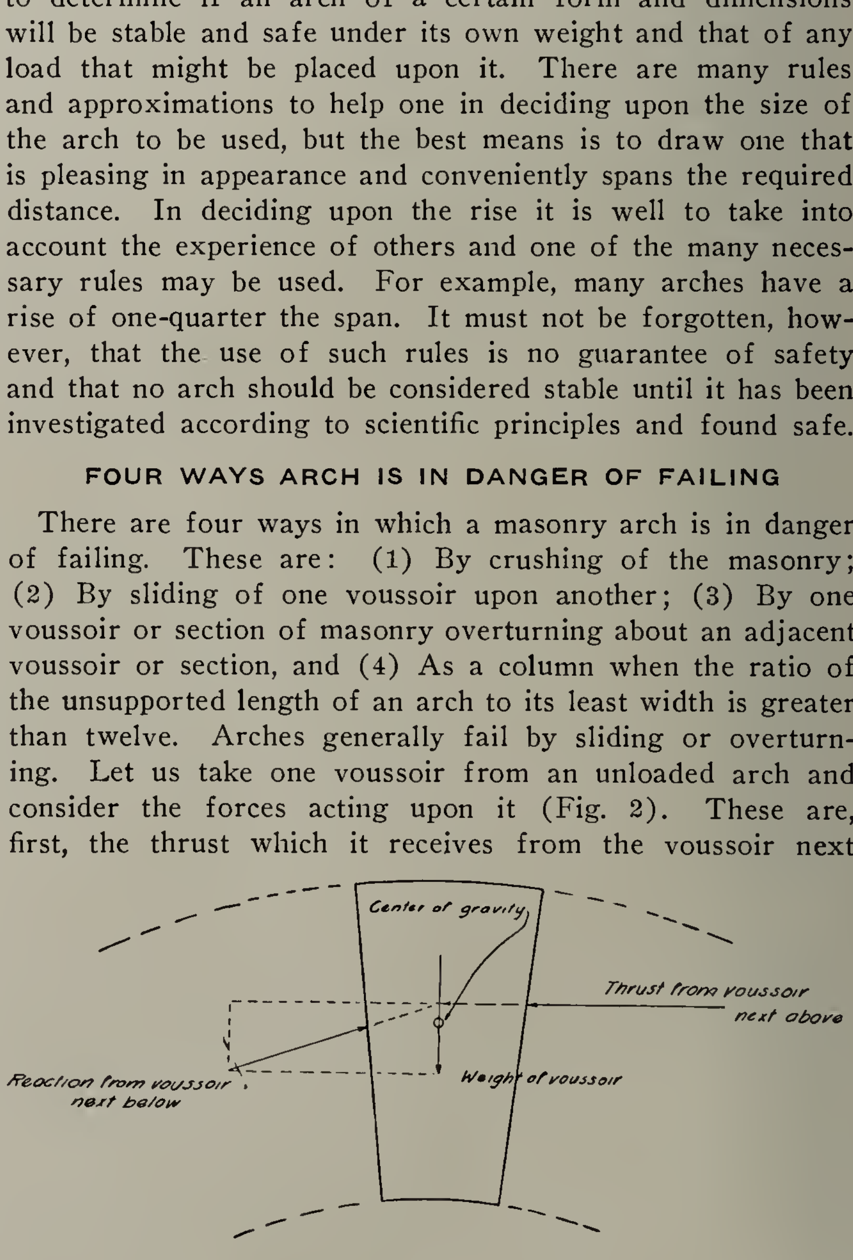

Center of gravity
Thrust from voussoir next above
Reaction from voussoir next below
Weight of voussoir

Fig 2

The points in which the various thrusts cut the joints are called the centers of pressure of the joints, while the line joining these centers of pressure is called the line of pressure or the line of resistance. In order that the arch may be absolutely stable this line of resistance must fall within the middle third of the arch ring. The reason for this is as follows: When any surface is subjected to pressure from the action of any force or forces, this total pressure may be considered as a system of an infinite number of parallel forces equal or unequal in intensity. Pressure of this nature is known as stress. This stress should not exceed the limits of safety of the material. When the resultant force acts at the center of gravity of a surface, the stress is uniformly distributed over the surface (Fig. 3).

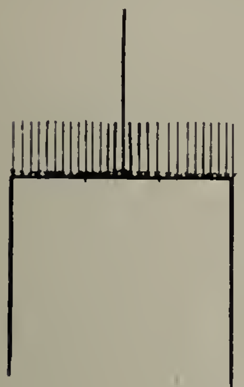


Fig. 3

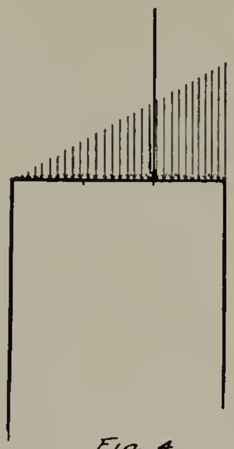


Fig. 4

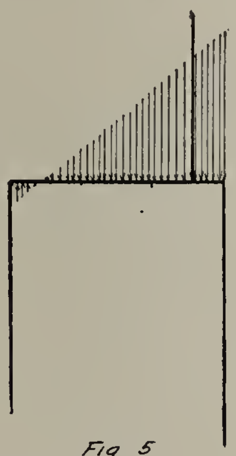


Fig 5

When the resultant force acts at a distance of two-thirds the total width of the surface from one edge (one-third the width from the other edge), the stress is uniformly varying, and its intensity at the edge farthest from the point of application of the resultant is zero, and at the other edge a maximum or twice the average stress (Fig. 4).

When, however, the point of application is at a greater distance from one edge than two-thirds the width (that is, outside the middle third of the area) a certain part of the surface adjacent to the edge farthest from the resultant is subjected to a *tensile stress* (Fig. 5). Masonry cannot be subjected to tension with safety. Hence, for stability the line of pressure of masonry arch must fall within the middle third of the arch ring.

TWO WAYS OF INVESTIGATING ARCH STRENGTH

Arches may be investigated in two ways, mathematically and graphically. The former method is involved and requires a knowledge of higher mathematics; the latter method is practical, rapid and, being self-checking, is much less liable to entertain error. Before taking up the investigation of arches it might be well to consider some of the elementary principles of graphic statics that are used in the investigation.

(1) Given two concurrent forces AB and BC, we find their resultant by completing the parallelogram and drawing BD as shown in Fig. 6. Inasmuch as the line DA is equal and parallel to CB it can readily be seen that BD might have been obtained as shown in Fig. 7. It should be noted that the two forces act around the triangle in the same direction and that the resultant acts in a direction opposite to them. Of course, the point of application of the resultant is the point of intersection of the forces.

(2) Given a single force, it can readily be seen from the preceding example that it may be resolved into any two components by simply drawing a triangle of which the force forms one side. The components act in a direction opposite to the force.

(3) The magnitude of the resultant of any number of parallel forces is easily found, for it is the algebraic sum of the forces. The direction of the resultant is the same as that of the forces, but the determination of the point of application offers some difficulty. Suppose we have two parallel forces ab and bc (Fig. 8a) and wish to find their resultant, its direction and its point of application. The difficulty lies in the fact that the forces do not concur. By resolving each force into two components we will have four concurrent forces. In order not to complicate the drawing, it is best to find the components of the forces on the side (Fig. 8b) and then draw them as shown in Fig. 8a. In Fig. 8b the forces will be designated in capital letters to distinguish it from Fig. 8a. If we can make two of the components equal in magnitude and opposite in direction, they will cancel each other and leave us only two concurrent forces, the resultant of which we can easily obtain. In order to do this it is necessary to make one side of both triangles of resolution coincident. Thus we make point D (Fig. 8b) the apex of both triangles. The components of AB are AD and DB. The components of BC are BD and DC. The polygon ACD is called a finicular polygon. DB and BD cancel each other. We now place these components on the drawing proper. From any point (1) on bc (Fig. 8a) draw a line parallel to BD of (Fig. 8b) and extend it until it intersects ab (or ab extended). From the same point (1) draw dc parallel to DC. From the point (2), where bd intersects ab, draw ad parallel to AD. Extend ad and dc until they intersect. The point of intersection is the point of application of the resultant ac. In the same way, we may reduce any number of parallel forces to two forces the resultant of which it is easy to determine.

AN EXAMPLE OF HOW THE GRAPHIC METHOD WORKS

In order to show the method used to determine whether or not a certain arch is stable we will investigate a segmental arch. A small arch is chosen for the sake of clearness, as it allows of a larger scale. The span is 10 ft.; the rise 2½ ft., the depth of the keystone (thickness of the arch ring) is 9 in. As the arch is symmetrical it is necessary to investigate only one-half of it. This half is balanced by the thrust from the other half and the reaction at the skew. We have no means of determining the points of application of these reactions, but if we assume the most severe conditions possible and find the arch safe, we may be sure it will be stable under any other conditions. The most severe case that we can assume is that the reactions have their points of application at the edge of the middle third of the arch ring, that is two-thirds the width from one edge and one-third the width from the other.

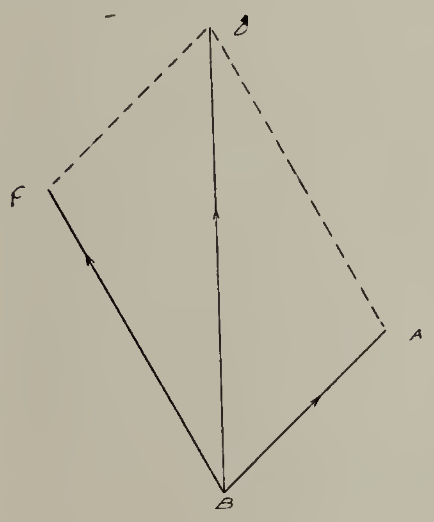


Fig 6

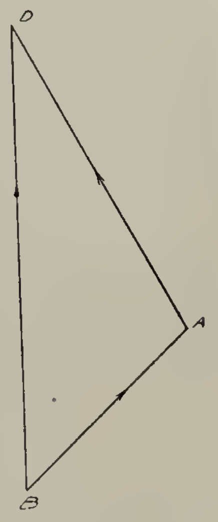


Fig 7

MAGNITUDE OF REACTIONS ARE THEN FOUND

Having assumed the points of application of the reactions, the next step is to find their magnitude. This found, we may determine the resultant of the reaction of each voussoir and its weight and hence have the thrust on the voussoir next below. Continuing this until the points of application of these resultants upon all the joints are at hand, we have only to join them by a line, which is the line of pressure. On the half arch under investigation, we have three forces acting: the thrust of the other half, the reaction at the support and the total weight of the half arch. The last is known; the point of application of the former two are assumed. As the weight of the half arch holds the other two forces in equilibrium, it must be equal to their resultant. Hence to find their magnitude it is only necessary to resolve the force of gravity (the weight of the half arch) into two components parallel to the reactions. In order to make the methods clearer, each step is shown on a different drawing and then the whole is combined. In practice all work is done on a single drawing. For the investigation we take a slice of the arch 1 ft. thick (perpendicular to the paper).

The weight of the half arch is the sum of the weights of the voussoirs (their resultant) and acts at the center of gravity of the half arch. The weights of the respective voussoirs act at their centers of gravity. Hence we have a system of parallel forces whose resultant we wish to obtain. The principle is the same as that given earlier in this paper. The centers of gravity may be found by the method shown in Fig. 9a. Lay off CF equal to BE; DG equal to AE; draw line FG; the center of the triangle EFG is the center of gravity of the voussoir.

The investigation proceeds as follows:

FIRST STEP AS SHOWN IN FIG. 9b

Draw one half the arch to as large a scale as convenient and divide it into voussoirs (these need not be the same as the actual voussoirs). Next, the face area of each voussoir is found. This is best done by the use of the formula,

$$A = \frac{A^0 \pi}{B360}(V_1^2 - V_2^2)$$ where A=area of each voussoir, B= number of equal voussoirs the halfarch is divided into. A^0= angle formed by radii of sector, of which the arch is the arc. V_1 and V_2 are the outer and inner radii, respectively, and π= 3.1416. Next, divide the arch ring into three equal parts as shown. From point E lay off vertically to a scale of *so many square units to a linear unit* the area of each voussoir one below the other, beginning with the top voussoir. The length of the line ES will then be equal to the total area of the arch ring. Draw the fenicular polygon EOW_{10} as shown. Draw vertical lines thru the centers of gravity of the voussoirs. These represent the direction of action of their weights. Where OE intersects the first vertical line thru the center of gravity of the first voussoir at a, draw a line parallel to OW_1 intersecting the second vertical at b. From b draw a line parallel to OW_2 intersecting the third vertical at C and so on to K. Draw KL, parallel to OW_{10} and extend it downward until it intersects EO (or EO prolonged at L). A vertical line thru L passes thru the center of gravity of the half arch ring and is the resultant of the weights of the voussoirs. A little thought will show that this is precisely the method employed earlier in this paper to obtain the resultant of the two vertical forces.

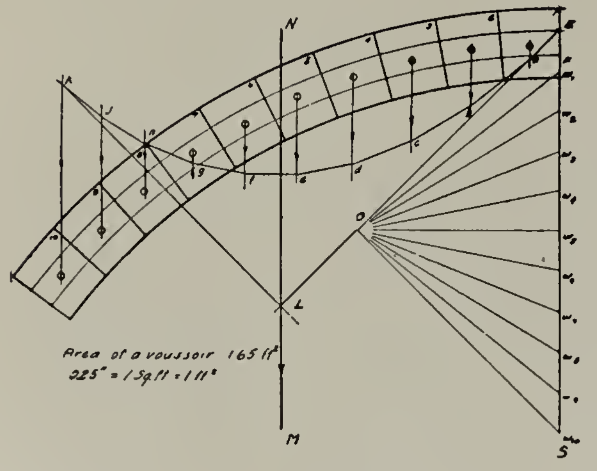


Fig. 9 b.
Method of determining resultant NM of forces (weights of voussoirs) a, b, c, d, etc.

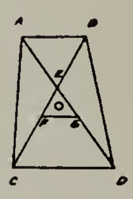


Fig. 9a.

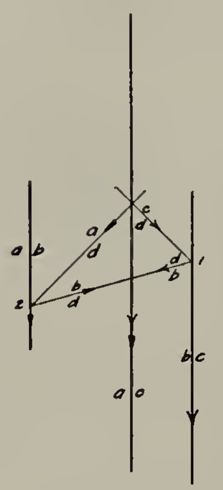


Fig 8a

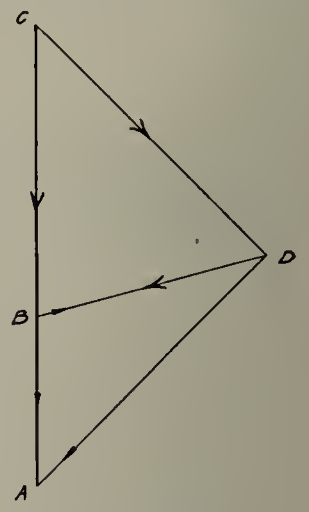


Fig 8b

SECOND STEP (FIG. 10)

We now have our resultant NM whose position and magnitude we know. The thrust PE acts horizontally and at E, hence it intersects force NM at N. We do not know the direction of the reaction at G but, in order to be in equilibrium with the other forces (NM and PE), it must intersect at N. Hence connecting N and G gives us the direction of the reaction NH. Draw a horizontal line from W_{10} thru M and H, MNH is a triangle of which the resultant MN is one side, the reaction HN the other, while the third side is parallel to the thrust PE. MH and HN, therefore, represent in magnitude the thrust PE and the reaction HN. Draw PE, the thrust from the other half of the arch, equal to MH. Connect P with W_1, W_2, W_3, W_4, etc. It can readily be seen that $W_{10}P$ is equal and parallel to HN. In triangle PEW, we have E W the weight of the first voussoir; PE, the thrust on the first voussoir from that next above it (the other half of the arch) and hence PW_1 is the resultant or the thrust of the first voussoir upon the second. In the same way, each triangle represents the weight of a voussoir, the thrust of the next above it and their resultant. Hence the lines PW_1, PW_2, PW_3, etc., are the thrusts from voussoirs 1, 2, 3, etc. As we know their directions and point of application of the first thrust PE we can draw them one by one and find out where they cut the voussoir joints. Connecting these points gives us the line of pressure that we are seeking.

Extend PE until it intersects the first vertical thru the center of gravity at a^1; from a^1 draw a line parallel to PW^1 until it intersects the second vertical at b^1, from b^1 draw a line parallel to PW_2 to c^1, so on up to k^1. The line drawn corresponds to the line of pressure*.

ARCH TAKEN AS EXAMPLE IS FOUND SAFE

In the example we have taken, the line of pressure falls within the middle third and hence the arch is safe from overturning. If the angle between this line of pressure and the normal to any joint is less than the angle of friction for the material from which the arch is made (34° for firebrick) the arch is safe from failure due to sliding. From the formula $S = \frac{P}{A}\left(1 + \frac{ec}{r_2}\right)$

S=compressive stress in lbs. per sq. in.

P=the thrust on the voussoir where the line of pressure comes nearest to leaving the middle third

A=area of section (1 x thickness of arch ring) e=distance from center of arch ring to where line of pressure cuts joint

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*The true line of pressure is that formed by connecting the points where this line intersects the joints.

c=one-half thickness of arch ring

r=radius of gyration of section with respect to axis perpendicular to paper

we may determine the stress on the arch. If this is less than the safe working stress for the material used (50 lbs./in.^{2} for *hot* fire-brick) the arch is safe from failure by crushing.

UNFAVORABLE RESULT SHOWS ONE OF TWO THINGS

If the line of resistance determined by the method just given should fall outside the middle third of the arch ring it means one of two things, either the arch is unstable or the assumption made as to the point of application of the reaction HN is erroneous. In order to find which is the case, we cut off all that part of the arch below the point midway between where the line of resistance leaves the middle third and where it enters again. The part of the arch remaining is investigated just as tho it were the half arch itself. If the new line of resistance remains within the middle third of the arch ring the arch is stable. If not, another arch must be chosen or such changes made upon the original arch as to cause it to fulfill the conditions for stability just given.

METHOD TO BE FOLLOWED FOR CONTINUOUS KILNS

If the arch is loaded, as is often the case with continuous kilns, in the investigation, the combined center of gravity of both voussoir and the load upon it is obtained. Beyond this, the investigation does not differ from that of an unloaded arch.

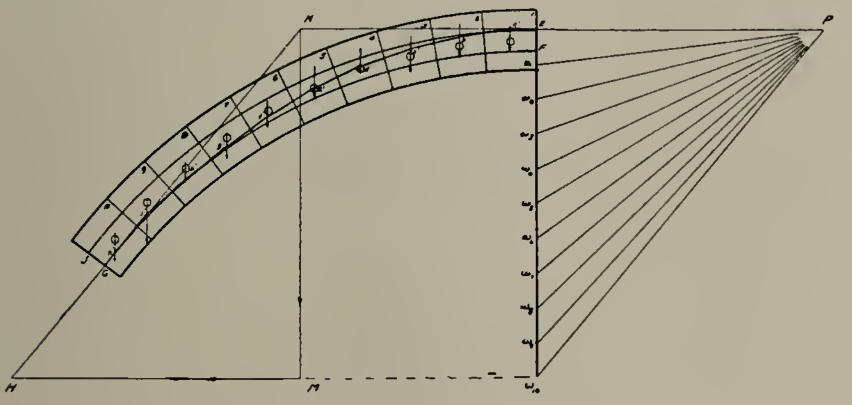


Fig 10

Fig. 11 shows the entire investigation carried out in a single drawing. In order to find the magnitude of the thrust and reaction we measure the lines PE and SP. This gives us so many linear units that are equivalent to so many square units. As the arch ring is one foot thick perpendicular to the paper, the number of square units multiplied by one gives the number of cubic units and this multiplied by the weight of the material (150 lbs./cu. ft. for fire-brick) gives the magnitude of the thrust and reaction in pounds. For example: SE=5.31 in. As the scale used was 0.25 in.=1 sq. ft., $\frac{5.30}{0.25}=21.20$ sq. ft. (21.20) (1)=21.20 cu. ft. (21.20) (150)=3180 lbs. the reaction of the arch at G.

* * *

From Order to Job; Or One Car's Part in a Month of Worry

Altho it is not an instance in which it would be fair to give the names, a Louisville dealer catalogs his experiences with a car of brick that are thoroly typical of what many other dealers and manufacturers are going thru during these troublesome times. These daily happenings all occurred in connection with one carload of face-brick of a type popular in Louisville—a cherry red brick manufactured only fifty miles or so north of the city, in Indiana.

As a result of his experiences, this dealer is now promising all comers who want brick not on hand that they can expect it when it is delivered, and not before. That is his prologue for every selling talk that he makes. To understand what is turning his hair white, follow him thru the month with this car, and then you can sympathize with him, probably having been there yourself.

A PAGE TORN FROM A BRICK MAN'S DIARY

"October 1st—Walked out this bright Sunday afternoon to see a big residence job which was going to show off my brick.

"October 2nd—Customer and wife called to order four hundred of the same brick for hearths in a house they were remodeling. Yes. Car of that brick ordered and would likely be in the next day.

"October 3rd—Pedagog friend called and left order for one thousand of the same brick for a new porch.

"October 4th—Failed to find the invoice in the mail. Booked an order for six hundred of the same brick for patching up a front; promised them for the week-end.

"October 5th—First customer called up. Booked an order for seven hundred of the brick for mantel in new country club.

"October 6th—No invoice; called up railroad freight office. Pedagog called to ask when he might expect delivery. Booked order for two hundred of the brick from friend for her sun dial; also promised delivery for the first of the week on the residence job inspected Sunday.

"October 7th—Pedagog on the telephone three times, his brick masons working and no front porch left on the house. Wrote polite letter to the manufacturer; also booked half a dozen small orders to be filled from the same car.

"October 8th—To church.

"October 9th—Some more trifling orders. Visit from the pedagog and long inspection of the whole line.

"October 10th—Letter from the manufacturer; no cars, but shipment promised next day. Telephone calls from three customers.

"October 11th—Pedagog called again; inspected whole line and, altho sadly disappointed, decided to wait. Six telephone calls about that car and visit from residence contractor.

"October 12th—No invoice; no car in. Querulous calls or visits thruout the day. Two orders for indefinite delivery booked.

"October 13th—Pedagog cancels order and says he will build a concrete porch.

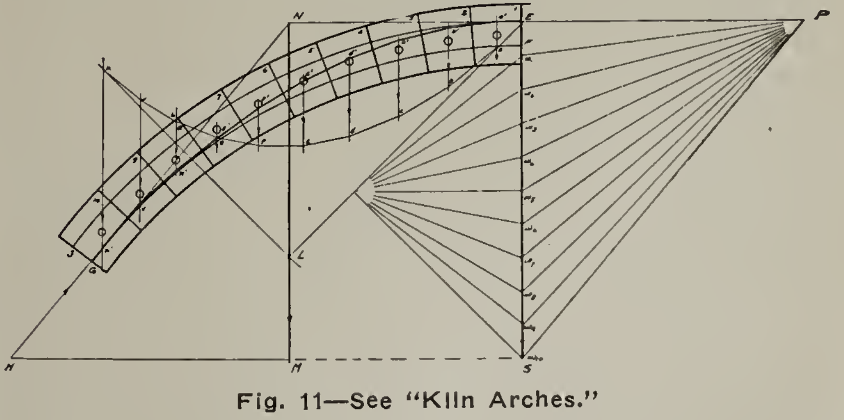


Fig. 11—See "Kiln Arches."

"October 14th—Another letter to manufacturer; rather curt.

"October 15th—In bed till noon; nothing in the Sunday papers.

"October 16th—Several conditional orders. Telephone inquiries about the car all day.

"October 17th—Letter from manufacturer. Still hopeful of shipment any minute.

"October 18th—Delegation from country club called. Long distance telephone call to manufacturer.

"October 19th—Visit from weepy sun dial builder. More telephone complaints. Another long distance message.

"October 20th—Dealer visits railroad trainmaster and freight agent. Gets promises. Promises kickers immediate attention.

"October 21st—Long distance call; no better outlook. Business of removing samples of this brick from display racks; thoro job. Avoided main thorofares on way home.

"October 22nd—Met three disappointed and aggrieved customers on the way to church and didn't go to church.

"October 23rd—Long distance call. Telephones ringing for kicks all day.

"October 24th—Sent man to manufacturer's plant to insist on shipment that day.

"October 25th—Letter from manufacturer says car being loaded.

"October 26th—Day given over to explaining that car will be in in day or so.

"October 28th—Manufacturer telephones car has left yards. Left girl to tell inquirers.

"October 28th—Notified a car has reached city and has girl call waiting customers promising deliveries at least by Monday. One of the drivers calls up at home in the evening, saying yardmaster has ordered the car, which is loaded, to the shops; doesn't know when it will be released.

"October 29th—Day spent in solitary confinement.

"October 30th—Girl instructed to say that I am down at railroad yards trying to get those brick.

"October 31st—Car finally placed and every available team put to work making deliveries, while I figure out how much has been lost on the carload."

* * *

Northwestern Road Congress' Third Session

Present indications are that the third annual session of the Northwestern Road Congress, to be held at Chicago on December 8th and 9th, will be a great success. Some of the active participants will be U. S. Director of Public Roads Logan Waller Page, President John A. Hazelwood of the Wisconsin Highway Commission, Prof. Agg of the Iowa State College, State Engineer H. G. Shirley of Illinois, Highway Superintendent H. J. Kuelling of Milwaukee, Chief Engineer W. D. Uhler of the Pennsylvania Commission, Chief Engineer W. W. Marr of Illinois, Harry B. Hawes of the St. Louis Business Men's League, J. D. Clarkson of the Jefferson Highway, and others in high standing as road officials and earnest workers. The congress will be highly instructive, entertaining and productive of much assistance to all who attend, and a large attendance is promised.

* * *

Mexican Governor Rebuilding with Brick

Notwithstanding the general disturbed conditions in Mexico, Governor Gustavo Espinoso Mireles of the State of Coahuila is carrying on the work of rehabilitating the city of Saltillo, capital of that state, on an extensive scale. He is now erecting a magnificent public school building at a cost of $350,000. A modern plant for manufacturing pressed brick has been established at Saltillo and the product of this plant is being used in the erection of the new building. Many of the streets of Saltillo have been paved with brick under the direction of Governor Mireles.

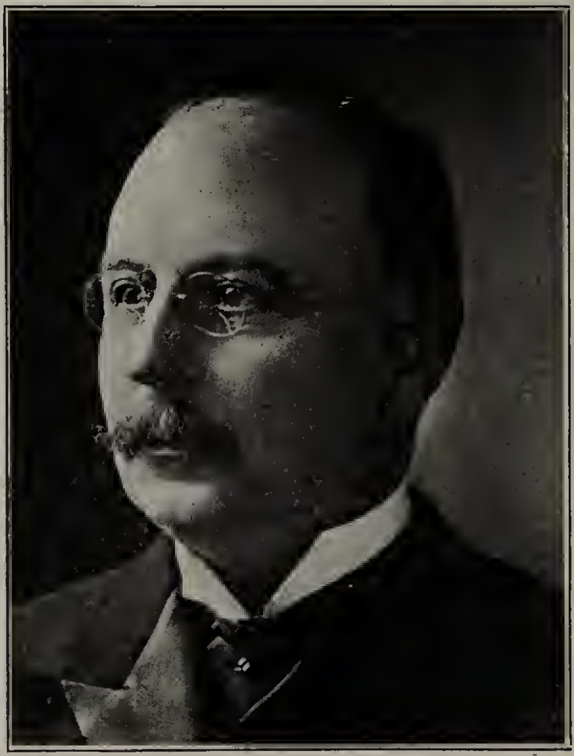
BUILDER *of* CITIES PASSES OVER *the* GREAT DIVIDE

Charles H. Frost, organizer and president of the Los Angeles (Cal.) Pressed Brick Company, died at his home at 1733 Fourth avenue, Los Angeles, on the evening of October 9th after a prolonged illness. Standing as monuments to the work which he did in the manufacture of burned clay materials are some 30,000 buildings on the Pacific Coast and in Chicago.

Mr. Frost was born on June 9th, 1844, in Ithaca, N. Y., where he received his early education. Coming to Chicago in 1862 he took up his college work, but soon dropped his text books to join the ranks of the Union army when President Lincoln's call for volunteers was issued. Immediately following his service in the army, he engaged in the life insurance business, but gave this up in a few years to start the Anderson Pressed Brick Company in Chicago in 1877.

Thus, for a period of about forty years, Mr. Frost acted as the president of large brick manufacturing companies, and much interesting history of this industry in Chicago is coupled with his name. From a letter written by his son, Howard Frost, who has succeeded his father as president and manager of the Los Angeles company, is gained the knowledge that the Chicago company of which Mr. Frost was general manager in 1877 was located on Thirty-eighth court, next door to his staunch friend, D. V. Purington, the founder of the Purington Paving Brick Company of Galesburg, Ill., and whom death claimed on April 3rd, 1914.

Owing to ill health, Mr. Frost was compelled to leave his Chicago interests in 1886 and move to California. In two years, however, he had organized the Los Angeles Pressed Brick Company which grew from a twelve-man outfit to a four-plant organization that carries more than four hundred names on its payroll.



CHARLES H. FROST

GAS ANALYSIS
APPLIED *to* BRICK KILNS

Some Suggestions from a Combustion Engineer Looking Toward the Utilization of Waste Heat and Economy in Kiln Furnaces

By F. D. Harger

(*Be Sure and Read Editorial on Page* 785 *in Connection with the Following Article.*)

SOME FEW WEEKS AGO, when engaged in testing the efficiency of a number of boilers and furnaces in a large brick manufacturing plant in Pennsylvania, the writer had his first opportunity to study the "science" of turning clay into a commercial product. He was conducted over the entire plant from mine to warehouse and, naturally, as a man interested for the most part professionally in the combustion of fuels, the kilns proved to be most interesting and, consequently, absorbed considerable of his time.

"What do you think of our industry, Mr. Harger?" the writer was asked.

What did I think about it? Right here I want to ask the readers of this magazine to be lenient in their judgment about all that the writer is going to say, for he is a stranger among you and confesses to know nothing of the ancient and honorable trade of brickmaking.

SURPRISED AT APPARENT INEFFICIENCY OF PLANT

Well, my answer to this open question may not have sounded very flattering to my client, for I told him frankly of my surprise at the apparent inefficiency that confronted me on every hand as I passed thru the works. The total absence of economical methods; the utterly crude construction of even the modern kilns with their patched-up fireboxes and iron rods as grates; the guessing at the temperature of the kiln during the burning process, accomplished by a simple laborer with the only means—that of his vision and, perhaps, a little experience in guessing from the color of the fire within just what temperature is attained—and last, but not least, the fearful waste of perfectly good heat up the chimneys of the large number of kilns in use. All of this left a very sad picture in my memory and has since occupied a great deal of my time and thought, particularly as to why brick cannot be manufactured for from fifty to sixty per cent. of what they are now costing to make, and have reached some conclusions which I am submitting for your criticism and which I will discuss more in detail in the following paragraphs. I have often heard and read about the great loss and waste of coal in the brick and cement industries, but never have had any actual experience along this line. I, therefore, have gone into this matter thoroly and hope that I shall have further opportunities to learn about efficiency methods in your industry.

GREAT SAVING OF HEAT POSSIBLE IN BRICKMAKING

I am a great believer in preserving our natural resources and, therefore, in boiler efficiency work it is my aim to reclaim every heat unit that is not absolutely essential to steam production. There are preventable losses of heat up the chimney in the factory power plant or central station and there are those that are non-preventable. If the preventable losses have been cut down to a minimum, we have reached a stage called "Efficiency"—maximum efficiency. The writer does not claim to have ever reached one hundred per cent. efficiency in his work, nor will any of his colleagues make such a claim, as even in the best constructed furnace better than eighty-five per cent. is not attainable. But this percentage we are striving with all of our means to reach. We give our firemen and operators bonuses to incite their co-operation, realizing that by so doing, we are saving money, besides raising their wages in proportion to the amount of coal saved; we install for their guidance instruments of scientific nature; we equip our boilers with every apparatus and contrivance known in order to produce economy, yet the percentage of best possible saving in even the most poorly managed power plant cannot be compared with that possible in the best managed brick plant.

Here is an industry of tremendous proportions, yet there is not the slightest sign of scientific control having ever been tried, with the exception, perhaps, of pyrometers installed in the office of the company and out of reach of the burner.

MAKES ANALYSES OF GAS FROM TWO KILNS

In order to arrive at conclusions regarding the exact determinations of heat losses in kilns, and other furnaces for that matter, a knowledge of the chemical conditions and constituents of the gases of combustion is absolutely essential. The percentages of carbon dioxide (CO_2), oxygen (O), carbon monoxide (CO) and nitrogen (N) must be analyzed continuously in order to be of any material value to the operator and for his guidance in the performance of his furnaces. This can best be accomplished with the help of recording instruments.

Not having these at his disposal, the writer readily obtained permission to use the gas analyzer used in the boiler room for similar purposes. From the following data it will be seen that, as far as combustion of the fuels is concerned, the writer must have struck a time when conditions were indeed ideal, but he has his doubts that such conditions always exist under all sorts of weather and barometric conditions which must have considerable bearing upon the operation of the kilns, as it has upon boiler furnaces.

ANALYSIS OF KILN NO. 36

This kiln had been under fire for twenty-four hours and was, therefore, in the early stages of the burn. Three samples of gas were taken from the up-take about seven feet below the damper and subjected to a careful analysis with the following results:

Sample No. 1

$$\left.\begin{array}{r} CO_2 - 9.0\% \\ O - 1.4\% \\ CO - .0\% \\ N - 89.6\% \end{array}\right\}\text{Damper closed}$$

$$\overline{100.0\%}$$

Sample No. 2

$$\left.\begin{array}{r} CO_2 - 14.0\% \\ O - .0\% \\ CO - .0\% \\ N - 86.0\% \end{array}\right\}\text{Damper closed}$$

$$\overline{100.0\%}$$

Sample No. 3

$$\left.\begin{array}{r} CO_2 - 13.6\% \\ O - .4\% \\ CO - .0\% \\ N - 86.0\% \end{array}\right\}\text{Damper closed}$$

$$\overline{100.0\%}$$

It should be borne in mind that complete combustion is only obtainable in a laboratory test which would give us 20.7% of CO_2. Everywhere combustion takes place we are striving to obtain the maximum percentage possible of this gas, however, without any trace of CO. If this goal is reached, then we know that we have the condition that is nearest to complete combustion. Thus, the carbon of the coal has united under high temperature with just a sufficient amount of oxygen. In a boiler furnace from ten to twelve per cent. of CO_2 is considered very good. Of course, higher percentages have been reached and could be maintained with perfect safety without the presence of CO and with a low exit temperature.

A kiln has furnaces the same as a boiler and their purpose is the production of heat. In a boiler furnace this heat is deposited into the water of the boiler, while in the kiln the heat is deposited in the ware. In both cases, we are endeavoring to extract *the largest possible number of heat units for the process of steam making or brickmaking.* Therefore, the writer believes he is correct in assuming that the results found in the test referred to above, the percentages of CO_2 would indicate remarkably good results, considering the kiln had only been lighted twenty-four hours previous and that no scientific control was maintained.

The average percentage of CO_2 as found amounted to 12.2% and was accompanied by an exit gas temperature of 1,650 degrees Fahr., or 899 degrees Centigrade.

Another kiln was tested and I selected for this purpose one that was at "top heat," that is, one whose contents was almost ready to be cooled and taken out. Here is the result:

ANALYSIS OF KILN No. 1

Sample No. 1

$$\left.\begin{array}{r} CO_2 - 8.0\% \\ O - 8.0\% \\ CO - .0\% \\ N - 84.0\% \end{array}\right\}\text{Damper open}$$

$$\overline{100.0\%}$$

Sample No. 2

$$\left.\begin{array}{r} CO_2 - 8.4\% \\ O - 8.4\% \\ CO - .0\% \\ N - 83.2\% \end{array}\right\}\text{Damper open}$$

$$\overline{100.0\%}$$

The average percentage of CO_2 in these two samples amounted to 8.2 with an exit gas temperature of 1,724 degrees Fahr., or 921 degrees Centigrade.

Altho my two tests were only brief investigations (and for more accurate data they should have been extended over a longer period of time to be of material value), they disclose such a tremendous amount of heat lost that I want to figure with you just to how much the losses amounted to in these two instances.

$$\text{The losses} = .65 \times \frac{(T - t)}{CO_2\%}, \text{ in which}$$

.65 = Constant.

T = Temperature of gases (in degrees Centigrade).

t = Temperature of the atmosphere (in degrees Centigrade) 40° Cent.

Thus we obtain:

$$\text{Test No. 1: } L = .65 \times \frac{(899 - 40)}{12.2\%} = .65 \times \frac{859}{12.2} = 45.8\%$$

$$\text{Test No. 2: } L = .65 \times \frac{(941 - 40)}{8.2\%} = .65 \times \frac{901}{8.2} = 71.5\%$$

AMOUNT OF HEAT WASTED IS APPALLING

In plain words, at the beginning of the process about 46% of the heat generated was wasted up the chimney, while at the end of the process this loss amounted to about 72%, an average of 59% of the heat lost, not thru inefficient methods in the operation of the kiln, as we have learned above, but thru lack of means for the utilization of this heat. The lost heat at this particular plant, where I estimate roughly about one hundred and fifty tons of coal are daily consumed in the kilns, would furnish over 2,000 h. p. (the total h. p. now being about 700 rated), enough to furnish free light, heat and power to a plant of three times its size. These figures are so appalling that it is surprising to me that so little interest is taken in the recovery and utilization of this heat, which is entirely a by-product of the business. To me it seems that brick are still being made as they were two thousand years ago. There certainly does not seem to be a great improvement in the methods employed.

As already pointed out, this test was taken under very favorable condition. What would the losses be due to incomplete combustion—a high percentage of carbon monoxide (CO) in the exit gases, yielding only 4,500 B. t. u.'s, compared with that of carbon dioxide (CO_2) yielding about 14,000 B. t. u.'s? I would like to investigate a great number of kilns under all kinds of conditions, and possibly I would find here and there a plant utilizing its waste heat and operating its kilns with a minimum percentage of preventable loss.

TWO SUGGESTIONS FOR UTILIZATION OF WASTE HEAT

I wish to advance a few suggestions as to the manner in which the chimney losses might be recovered. I have recently noted that a large Portland cement company is installing, as an experiment, on two of its rotary kilns two waste heat water tube boilers. Could not such an installation be adopted for brick kilns? The only difficulty would lie in the centralizing of the heat from the various sources, which generally cover a wide area. On a series of rotary cement kilns such an installation is comparatively an easy matter, while I admit that on brick kilns a waste heat power plant would be an expensive experiment. If one, however, compares the cost of such an installation with the yearly losses in dollars and cents, due to heat wasted, one would soon reach the conclusion that within a year or so the new plant would pay for itself, which would certainly be a good investment. However, it would hardly be advisable to change the old plant into such a modern brick factory, as the rebuilding could hardly be accomplished without interference with the operation of the plant.

Another suggestion, which was made to me in a rough and incomplete form, is that of the erection of a battery of gas producers feeding the individual kilns by separate lines. This would permit of the most perfect and accurate control of the heat, the advantage of which will be better understood by the manufacturers than by myself. I believe that in this way a cleaner and more uniform grade of material can be turned out in very much less time, entirely eliminating failures and doing away to a great extent with the human element. Personally, the first suggestion would appeal to me more, inasmuch as with such a producer plant heat losses cannot be avoided for, after the heat has done its duty, it is released, whereas my suggestion provides for the utilization of this wasted heat.

GAS ANALYSIS AS APPLIED TO BRICK KILNS

I have gone a little far into the brick plant of the future and will now return to the topic I intended to discuss, namely, gas analysis applied to brick kilns, to which must be added pyrometry, for both should go hand in hand. One can run a boiler plant without a CO_2 recorder and guess at conditions within the furnace (and waste a lot of fuel), but one cannot run a boiler plant without a pressure gauge. A pyrometer stands in the same relationship to a kiln as does a pressure gauge to the boiler. As I have never found a boiler without this appurtenance, I should no less find a kiln without a pyrometer or similar contrivance. Am I right? At least, I cannot conceive the possibility of making brick without having absolute and definite knowledge of the degree of heat during the various stages of the burn.

The writer has said that he can operate a boiler plant without a CO_2 recorder but, if he does, he knows that he cannot do it efficiently. Can a kiln be run efficiently without a knowledge of the percentage of oxygen, carbon dioxide, carbon monoxide and nitrogen in the flue gases? These are the gases that interest us most in the chemical process of combustion. In the case of my client, if he always maintained the conditions as I found them, I would answer "yes"; but even he admits that there are days when the entire output of one or another kiln is ruined. The cause of this mystery—and such it has been considered—could only be guessed at, yet it can be easily solved with the help of an instrument hitherto little known to the brick industry but nevertheless deserving its undivided attention.

A SILENT WATCHER OF THE COAL-PILE

This instrument is a carbon dioxide recorder, commonly called a CO_2 recorder—an automatic chemist making analyses of the kiln gases every two to three minutes—a silent watcher of the coal-pile. With the aid of such an instrument on the kilns as they now exist, the burner could control the physical and chemical changes of the gases within the kiln, as well as its mechanical operations, such as firing, cleaning, clinkering, regulation of draft, and make a selection of the fuel that is best adapted to the particular design of the furnaces and grates. Every change in the quality of the gases and heat developed due to an excess or an insufficient air supply will show up instantly on the chart of the instrument and can be remedied at once without jeopardizing the costly contents of the kiln.

All the heat units in the coal can only be extracted when creating as near as possible complete combustion in the fire-boxes and kilns. This cannot be accomplished by looking at the fires nor even by means of a pyrometer alone. It requires 11.7 pounds of air to burn one pound of coal completely. An excess amount of air is essential to combustion and the amount practical will be shown on the instrument. A pyrometer will indicate the degree of heat generally, but it does not tell how to generate it and it will not tell why sudden changes in temperature are taking place.

The price of a CO_2 recorder is high but, if we consider the monetary loss involved by the spoiling of only one kiln, we will readily see that it would well repay us to install one machine on every kiln. A recorder, *registering the amount of oxygen in the flue gases,* would serve the same purpose as the CO_2 recorder, only the price of the former may slightly exceed that of the latter. A monoxide recorder would not be suitable, as, during the periods where no monoxide forms—and these should occur during the entire burn—the chart would be a blank.

CO_2 AND OXYGEN RECORDERS USED IN GERMANY

I should be pleased to go into details concerning these instruments and their various uses at a later date, if sufficient interest is shown in the most accurate and most precise method of kiln control. I have given this matter years of special study and can assure you that CO_2 recorders are now used by thousands of boiler and chemical plants for economy and efficiency. In Germany kiln conditions are controlled by CO_2 or oxygen recorders to good advantage. To us here in America they would be of the same value as they are across the water, especially with the rising prices of coal and labor during the past few years.

* * *

S. A. F. E. Entertains Fireproof Material Men

An elaborate entertainment of representatives from the fireproof building material trades of the Mahoning valley was provided by the Society Advocating Fire Elimination at Cleveland, Ohio, on October 26th. The festivities included an automobile ride, dinner at the Cleveland Athletic Club and an inspection of the different plants in the Cleveland district, where the members were shown "how it is done" in the "Sixth City." At the dinner at the athletic club in the evening there were addresses by H. G. Gaines of the Ohio Builders' Supply Association; E. A. Roberts of the Builders' Exchange; Robert C. Griswold of the Business Service Bureau, and a blackboard talk by Earl Ross of the Cuyahoga Builders' Supply Company upon cost finding in connection with the marketing of building materials.

Iowa's 1915 Production Unprecedented

The value of clay products manufactured during 1915 in the state of Iowa was $6,749,088, a figure that has never been exceeded in the history of the clay products industry in that state, according to a bulletin recently issued by the Iowa State Geological Survey on the value of mineral production during 1915.

Cerro Gordo county ranked first in the value of clay products manufactured by counties, its ware being worth $1,830,220.

Webster county followed with a total of $1,256,981, while Polk county was third, its production having a value of $791,371. Woodbury county ranked fourth and Dallas county fifth.

Iowa's production of drain-tile alone had a value of $3,802,579 in 1915, an increase of $621,743 over 1914.

COST ACCOUNTING *for the* CLAY PLANT

Three Tables in This Issue and Will Be in Every Number Following, Until Entire Uniform Cost Keeping System Has Been Published

By A. J. Huac

N ACCORDANCE with our decision, as announced in the October 17th issue, to publish three instead of two tables of the uniform cost system every issue, we are giving below tables Nos. 9, 10 and 11, together with the necessary explanatory matter. For the enlightenment of any reader who may not understand the hieroglyphics appearing in the accompanying tables, particularly in the second column, it might be added that the exact meaning of these signs can be obtained from page 307 of the August 15th issue of "Brick and Clay Record."

LOADING FROM YARD

All the costs up to this point are necessary in making any product of clay. An efficient selling organization will enable the factory to load cars for shipment direct from the kiln, thus obviating any cost of loading from yard. The greater percentage of the time that this is done, the greater the credit to the selling organization and the smaller the percentage of time it is done, the less credit is due to the selling department. For this reason we class this department as a debit against selling. Its work is to pick up the ware in storage and ship it. We work out the costs on the tonnage basis to compare the labor costs, and so forth, but we total all costs in a lump sum to be charged as an expense of selling.

This table is almost identical with No. 8 and, like it, the repairs and investment are almost negligible.

GENERAL LABOR

The work of this department is to absorb all expenses not covered by any other. Cleaning up the factory, hauling rubbish, and similar work, which apparently has no direct connection with the manufacture of clay ware, should be charged here.

The investment may be considered small, but many plants have vacant ground, and so forth, that is not used by any other department. It is to cover items of this kind that we added a place for it here.

We charge this general cost on the basis of the tonnage emptied, as that seems most practical.

As previously explained, care must be exercised to keep from falling into the error of putting too much into this general department. Nothing belongs here which can possibly be put into another department.

STRIPPING

The work of this department is to uncover the clay which is to be used. It really belongs first but, since it effects only a few manufacturers, we have placed it here.

"Fuel" and "Water" will be applicable when a power-driven machine is used, unless it be electrically-driven. In that case "Power" will be applicable.

We arrive at costs per cubic yard of stripping to compare the operating costs period by period, and also arrive at the cost per ton uncovered to add to the cost of the clay.

TABLE NO. 9—LOADING FROM YARD

Line No.	Post From		Post To	
1	T19-XIII	Labor or Equivalent		
2	T20-IX	Repairs, Tools and Supplies		
3	T2-26	Power		
4	(1 + 2 + 3)	Operating Total		
5	T30-39	Tons Loaded	(10)	
6	4 ÷ 5	OPERATING COST PER TON LOADING		
7	T22-IX	Interest, Taxes, Insurance and Depreciation		
8	T13-25	Superintendence		
9	(7 + 8)	Overhead Total		
10	(5)	Tons Loaded		
11	(9 ÷ 10)	OVERHEAD COST PER TON LOADING		
12	(6 + 11)	TOTAL COST PER TON LOADING		
13	(4 + 9)	OPERATING TOTAL PLUS OVERHEAD TOTAL	T14-14	

TABLE NO. 10—GENERAL LABOR

Line No.	Post From		Post To	
1	T19-XIV	Labor or Equivalent		
2	T20-X	Repairs, Tools and Supplies		
3	(1 + 2)	Operating Total		
4	T8-10	Tons Emptied from Kiln	(9)	
5	(3 ÷ 4)	OPERATING COST PER TON		
6	T22-X	Interest, Taxes, Insurance and Depreciation		
7	T13-27	Superintendence		
8	(6 + 7)	Overhead Total		
9	(4)	Tons Emptied from Kiln		
10	(8 ÷ 9)	OVERHEAD COST PER TON		
11	(5 + 10)	TOTAL COST PER TON	T16-25	

TABLE NO. 11—STRIPPING

Line No.	Post From		Post To	
1	T19-XV	Labor or Equivalent		
2	T20-XI	Repairs, Tools and Supplies		
3	T21-VI	Fuel		
4	T21-110-XXV	Water		
5	T2-28	Power		
6	(1 to 5)	Operating Total		
7	T31-32	Cubic Yards of Stripping	(15)	
8	(6 ÷ 7)	OPERATING COST PER YARD		
9	See below	Proportion Stripping to Clay Uncovered		
10	T31-36	Tons Clay Uncovered	(17)	
11	(6 ÷ 10)	OPERATING COST PER TON UNCOVERED		
12	T22-XI	Interest, Taxes, Insurance and Depreciation		
13	T13-29	Superintendence		
14	(12 + 13)	Overhead Total		
15	(7)	Cubic Yards of Stripping		
16	(14 ÷ 15)	OVERHEAD COST PER YARD		
17	(10)	Tons Clay Uncovered		
18	(14 ÷ 17)	OVERHEAD COST PER TON UNCOVERED		
19	11 + 18	TOTAL COST PER TON UNCOVERED	T1-18	

Line No. 9 to be posted from information at each plant.

* * *

Examination for Ceramic Laboratory Assistant

An examination for a laboratory assistant in ceramics will be held on November 22nd, according to an announcement just made by the Civil Service Commission.

From the register of eligibles resulting from this examination, certification will be made to fill vacancies at the Bureau of Standards' laboratory at Pittsburgh, Pa., at salaries ranging from $900 to $1,200 a year.

This examination is held to secure eligibles having technical training in the subject of ceramics, comprising the technology of structural clay products, refractories and pottery. The supply of eligibles resulting from recent examinations for this position has not been equal to the demand and qualified persons are urged to enter, as the prospect of appointment of eligibles is said to be excellent.

* * *

For the third time this year an increase has been made in the price of pottery, the manufacturers having just recently issued a statement that prices would be advanced twenty per cent., with no discounts added to the foot of the bills based on the time of payment. The other two increases, both of which were five per cent., were made in March and in July. The increased cost of materials entering into the manufacture of this product, coupled with the ten per cent. increase granted to employes by the pottery manufacturers, is assigned as the cause.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

HITS FOSTERING OF CHEAP MARKET AND CONTINUED LOW PRICES

THIS MAGAZINE has published many articles of value in these columns telling the salesman how to sell brick; how to get repeat orders; how to switch frame houses to brick and, more recently, telling the salesmen what to expect if they do not immediately establish a record.

It would, therefore, seem opportune at this time to give a few "flash lights" behind the scenes—in the departments back of the salesmen and in those of the manufacturer.

MUST VISIT PLANTS TO BECOME "TOP NOTCHER"

The salesman who has the co-operation of an "on the job" telephone girl at his office and of the entire office force, as well as the shipper and the plant superintendent, is in an excellent position to get good results. These are important phases of every salesman's work and he should, at the start, get this co-operation. Further than these, however, there is another vital matter to be considered. *Salesmen connected with the different dealers in various markets who have not been at the plants they represent are, in most cases, only able to give from fifty to seventy-five per cent. efficiency to their employer.* This is true for many reasons. First, they have a great deal more faith in a product they actually know. Next, if they are acquainted with the superintendent at the plant, they will realize that when they send an order to the factory that he will give it his best personal attention because he knows the man on the "firing line." Again, there are often special lots of brick on the plants which the salesman, if familiar with them, could sell when he could not dispose of the regular product. Sometimes these special lots are cheaper, again they are a little different from the usual run in shade and so please the aesthetic sense of a particular customer.

An extra order secured by a salesman will more than pay for a trip to any one plant, and so, Mr. Dealer, try this with one salesman you will find it most profitable. To the writer's way of thinking no man is a good brick salesman until he has visited several plants.

MANAGERS SHOULD TAKE SALESMEN INTO CONFIDENCE

Another way to increase the efficiency of your sales force is to give every salesman full credit for his work. Salesmen appreciate recognition of their efforts quite as much, and even more, than beating a competitor out of a large order. Let them know they are helping to build up the strongest brick sales organization in your city. They will recognize the advantages to them of your success. Keep them informed of your intentions regarding your market, of the prospects for improvement in your business. If they are unable to attend the meeting of your local brick club or association, keep them informed of the work of that organization. If you do not have an association in your city, hurry up and get one. *You need it.* Make the salesmen feel they are important units in your organization.

WHO IS RESPONSIBLE FOR CHEAP MARKET?

Getting back to the manufacturer. There is in all markets a continual demand for cheap brick, and then cheaper brick. This condition is usually credited to the efforts or lack of effort on the part of the salesman. No doubt, he is partly to blame for working overtime on the "cheap proposition," *yet who told him you had cheaper brick than the other fellow, or that you might "under pressure" make a reduction in your price?*

You, Mr. Dealer and Mr. Manufacturer, will admit that the makers of any product are largely responsible for their markets. If one of you tries to beat the other fellow on a particular job just because you do not want him to get it and you cut your price to "put it over," then he reciprocates—*who is responsible for making a cheap market?* This practice has occurred so often it should have a place in the code of ethics of the American Face Brick Association.

One who visits the different markets, as does the writer, soon learns that every market is the cheapest in the country. There are possibly one or two exceptions to this.

Several of the larger manufacturers have recently remarked to the writer that the majority of the face-brick makers are a lot of "dubs," judging from the manner in which they sell their product.

WITH HIGHER COSTS WHY SHOULD PRICES BE LOW?

Why should the selling price of face-brick remain today the same as it was a year or two years ago? Not a single manufacturer is making brick at a cost less than $2 or more per thousand over all previous costs. How can it remain so? Why have nearly all manufacturers been afraid to advance their prices, for only a very few have advanced prices ever so little?

What is needed and must surely come to pass in the near future is a system for educating the manufacturers thru the good offices and co-operation of the American Face Brick Association.

The secretary of that organization and the directors are making strenuous efforts to bring about a policy of greater co-operation among manufacturers and a higher regard for the ethics of the association by the face-brick makers of the country. *Gentlemen, the secretary and directors cannot do it all.*

A very large membership for the association is absolutely necessary before the desired results can be gained. Surely, it is possible by the right procedure to get ninety or ninety-five per cent. of all face-brick makers of the country to join the association. *It needs them. They need the association.* Also their membership should greatly reduce the present dues and give the association the money and means for distributing data of an educational nature to the manufacturers which would cure the ailments of the industry. If every manufacturer knew the actual cost of his product to which should be added cost of selling and the *usual profit* to establish the selling price, very few would attempt to create a cheap market anywhere and thereby cheapen himself and his company. Also, they would not have to worry about getting a loan from their banker.

RESPECT THOSE WHO HAVE AN OPEN PRICE

In some markets the dealers have established an open price policy which has been a great help to the manufacturers whose product they sell, but the dealers are auxiliary units and, while most important, they cannot alone cure the makers ailments. Yet, the dealers who have adopted this policy should and will receive the greatest protection from the manufacturer.— *R. O. Cosler, Salesmanager, Darlington (Pa.) Brick and Mining Company.*

* * *

The Diplomat at the Telephone

There is a face-brick dealer in a certain city, with a big and growing business, who has an office girl worth her weight in gold. He admits it himself and, if necessary, he could secure indisputable evidence that a very considerable number of his valuable business connections have sprung from this source.

It is not that she is especially brilliant, for in most respects she is only fair-to-middling; but she has a way with her over the telephone which makes her stand out as one in a thousand. She has made it her business to know the names of people who have business with her employer and recognizes them instantly when they call over the telephone. Nothing irritates a man more than to have to repeat his name several times to someone in an office with which he is constantly doing business.

Moreover, this girl is a born diplomat and is not afraid to use her gift, devoting it frequently to soothing angry customers who want to kick about quality, delays, bills, and so forth.

"I'm paying that girl more money than any other office girl in this city gets," declared this brick dealer, proudly, the other day. "And she's worth it, and more. They've tried to steal her from me dozens of times, openly, but I make it worth her while to stick. I know how much trouble an ordinary fool girl at the 'phone can make, and I know how much trouble this girl saves. Handling the telephone is about as important business as any office has nowadays, and I've got a little more sense than some of the boys, in recognizing this fact and paying proper attention to it."

* * *

The "Movies" and Pottery

An interesting educational moving picture film which has been shown recently in theaters all over the country, is well calculated to stimulate interest in the product of the potter's wheel, by showing the human interest side of his work. In view of the fact that the pictures are shown to millions of people every week, it looks as tho the pottery trade has been the recipient of some exceedingly valuable publicity. The writer has no means of knowing whether the film was made by arrangement with manufacturers in this line, but as no names were mentioned and the commercial feature was kept in the background, it is fair to assume that it was put on for its educational value, which is considerable.

The film showed how the clay is worked up preliminary to being shaped. Then the potter at his wheel was brought into the picture, and it was explained that to make good pottery requires a strong arm, a sympathetic touch and excellent judgment—qualities which at once indicate the high character of the potter's product, and inspire respect for it on the part of the ultimate consumer. The methods used in finishing and glazing were also depicted, while the final test in the kilns was shown, with the explanation that this is where the real speculation in the business comes in, inasmuch as many a good piece fails to stand the heat and must be thrown away after coming out of the kiln.

The oldest potter in the business, together with some young and attractive members of the fair sex who are engaged in it, was introduced in the pictures, the entire film being one calculated to arouse keen interest on the part of those who saw it.

* * *

"Standing in" With the Traffic Men

The increasing difficulty of getting cars for all kinds of freight and the congestion which exists in freight yards at all busy points, have emphasized of late the importance of keeping a close watch on traffic matters. Few brick men can afford to hire a traffic expert for their own business, and still fewer can themselves qualify as experts; but any man with the "mixing" gift, which a good salesman should have, can do this much:

He can find out "who's who" at the various freight offices and see that, as far as possible, he makes himself and his firm solid with the right men in those offices. This is a simple and obvious thing to do, but there are a great many men whose business materially depends upon the manner in which their freight is handled, who have never thought of doing it.

Not so with a live young man now in the brick business who was, until a few years ago, a newspaper man in the same city. He started off with a wide acquaintance among railroad men, having handled that branch of work on his paper, and he soon saw the advisability of keeping up these acquaintances. He did so, and now the other brick men complain that he has a "stand-in" which enables him to get his inbound shipments moved when everything else is tied into a hard knot.

"That isn't so, of course," he said, in this connection. "I can't get a carload of face-brick for a contractor 'snaked out' of the middle of a forty-car string in the yards any more than anybody else can; but, believe me, a few tips and kind words spread around among the boys who run things in the yards help some in getting action. Even if you can't get action, you can get information a great deal more easily when they know personally who is asking for it, than when you merely call up as the Blankville Brick and Supply Company and ask for someone to 'bawl out.' Personally, I don't 'bawl 'em out,' because they have troubles of their own. I put it as a favor to me if they can tell me this or that, or do thus and so; and it's 'funny' how often I get what I want. Think it over, and see if there isn't something in it."

* * *

According to reports from Trenton, N. J., so great has been the pressure of orders at the Haddock Pottery in that city that not one of the sanitary workers had a chance to attend the Interstate Fair, every man working full time. It has been customary in years gone by for this firm to allow its workers a holiday on "Big Thursday" of the fair, but it was found impossible this year.

* * *

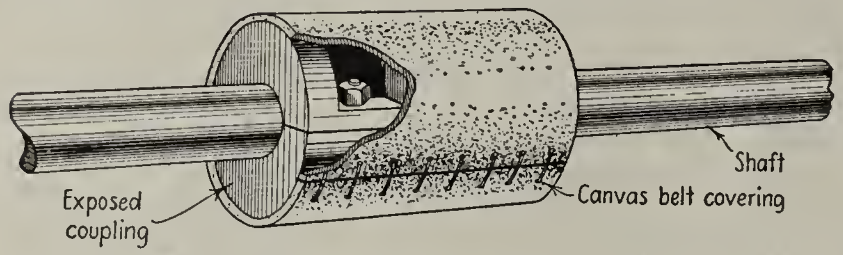
Pottery salesmen have done less traveling this year than ever before known. A few salesmen made trips without trunks of samples, merely meeting the trade and keeping in touch with the outside situation.

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Protecting Workmen From Revolving Couples

A very practical method of protecting the men on the plant from the danger of being caught by a revolving shaft coupling is shown in the accompanying drawing.



How Revolving Shaft Coupling May Be Covered So as to Protect Workmen

A cylinder of belting is laced around the exposed coupling loosely enough to slide freely over its surface. When pressure is applied to the belting while the shaft is in operation, as in the case of a man's accidentally leaning up against it, the belting stops but the couple underneath continues to revolve. In this manner an instant warning is given to the workman of his danger.

* * *

Stopping Bloated Brick with a Pit Pump

The accompanying photograph, taken on the plant of the Terre Haute (Ind.) Vitrified Brick Company, shows one of two vacuum-suction pumps used to carry the water from the bed of the pit to a higher level where it is received by the second pump and forced to the sump, or other receptacle in use for this purpose.

A use for these pumps is found especially in the spring months of the year when many clay pits become filled with water, the result of spring floods and melting snow, that must be discharged before operations can commence. On the plant mentioned above, as many as eight pumps have been in use at one time during this period of the year, removing the water from the pit.

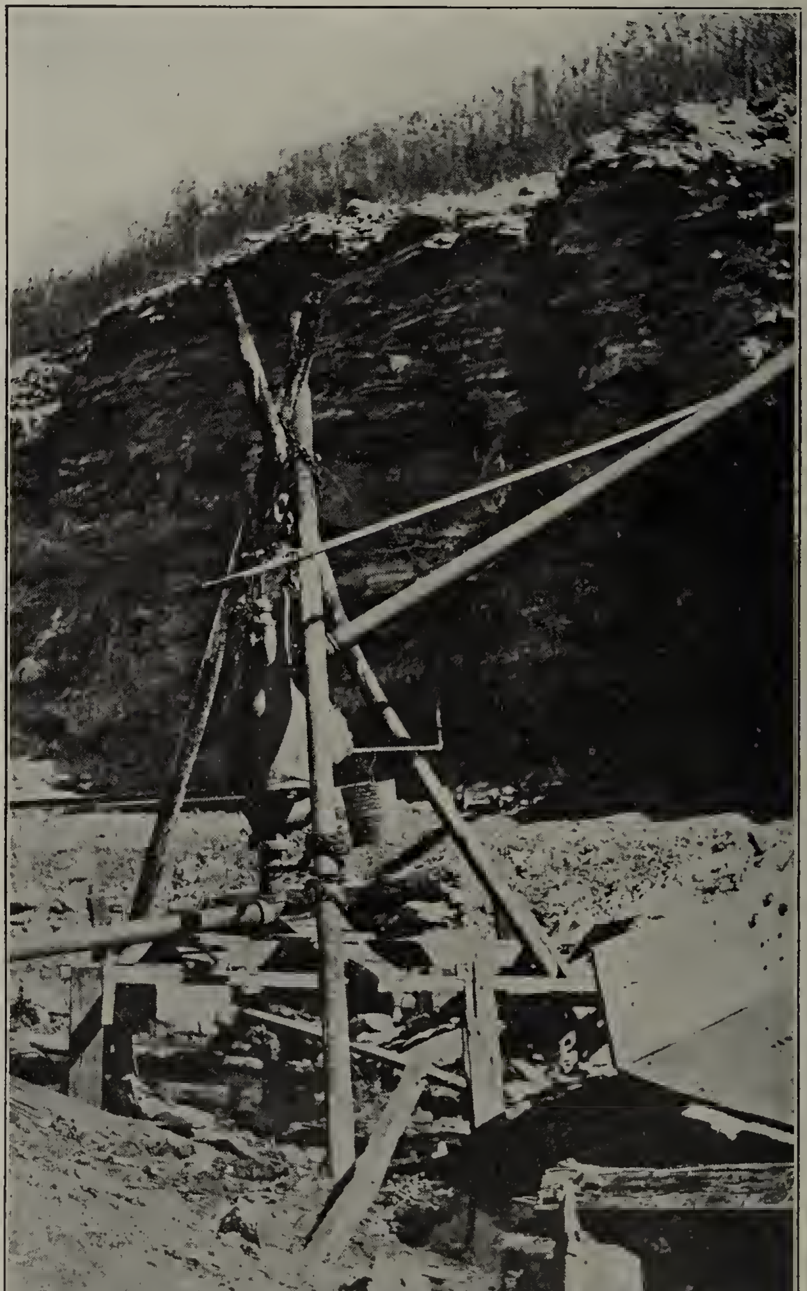
However, the need for pumps is by no means limited to the spring months. In many instances they constitute a very important plant adjunct thruout the entire year. A rather startling bit of information regarding the value of the pit pump was obtained on the plant where the accompanying picture was taken and presents a new thought regarding the elimination of bloated brick to a large number of men who have given considerable thought to the solution of this problem.

The officials of this plant claim that where there is water in the clay pit, there is invariably found a vegetable growth —a form of carbon. When the clay with which this vegetable matter has been mixed is burned, the carboniferous impurity causes no end of trouble, since it must be completely burned out before a satisfactory product can be made. If it is not oxidized, a bloated and swelled brick or tile is produced that is unfit for anything but the dump.

Besides the loss of ware that is caused thru the presence of this impurity, the length of time necessary to burn the material is greatly increased, since it is only by prolonged firing that it can be burned out. This increases the length of time consumed in burning and very rapidly causes a loss of large amounts of money in the form of wasted coal, more depreciation per kiln per burn, reduced capacity and, very often, poor ware.

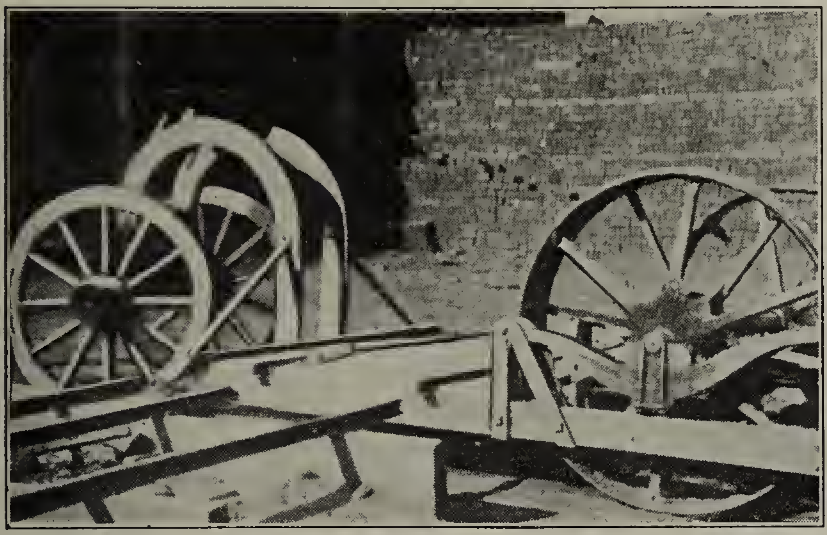
It is easily seen, therefore, that the pump is a good investment for the manufacturer of burned clay products, who, when looking for the cause of his "swelled-bellies," fails to notice the pond of stagnant water in his pit.

Another matter of interest regarding the vacuum-suction type of pump is that it can be put to work in the pit with little danger of being plugged up by the solid matter that is bound to find its way into the pump with the pit water. These pumps are designed to handle solid as well as liquid materials. In one instance, according to a report from a prominent clayworking concern, a frog of such large proportions that he clogged the discharge pipe was successfully put thru the pump.



Vacuum-suction Pump on Duty Removing Water from Pit of Large Paving-brick Plant, Thereby Eliminating One Source of Bloated Brick.

A Wagon for Transferring Drier Cars



Horse-drawn Transfer for Carrying Drier Cars to Kilns Located at Inconvenient Points on the Yard

Getting drier cars transferred to kilns that are located in inconvenient places on the yard, where a track would be very hard to lay, is a problem that many clay products manufacturers are endeavoring to solve. The accompanying photograph illustrates a system of handling this problem that does credit to its originator—the owner of a southern clay plant.

It is a horse drawn drier car conveyor that can reach any point in the yard where it is possible to drive a horse. It has a heavy platform slung from a pair of substantial wagon wheels in the rear and a specially designed pair in the front. Upon the floor of the platform is fastened two rails of the correct gauge and at the same height from the ground as the permanent rails. The drier cars are pushed along on the permanent rails until they reach that portion of the yard where conditions prevent a track being laid. The conveyor, drawn by a horse, is driven up to the end of the track and the cars are pushed upon it, and hauled to the proper kiln.

* * *

Keep Fire-brick Under Cover

Fire-brick should never be allowed to remain on the plant uncovered, a fact that should be borne in mind not only by the fire-brick manufacturer but also the manufacturers of other clay products who have use for that material in their kilns.

When a fire-brick which has been exposed to rain is placed in the kiln, it contains an excessive amount of moisture. The tendency is, therefore, when the brick are subjected to the tremendous heat, for the evaporation of the moisture to be so intense as to cause spalling and crumbling of the brick, shortening its life considerably.

Even greater, however, than the loss occasioned in this manner is that suffered when a quantity of fire-brick is allowed to stand unprotected thru the winter months. The constant absorption of water followed by the freezing of that water in brick causes interior strains and stresses to be set up that rapidly reduce the brick to a crumbled mass, and if it is strong enough to hold its shape against forces that it was never designed to combat, its utility for withstanding excessive heat is greatly impaired.

It is a cheap and advisable preventive to spread a canvass cover over the pile of fire-brick in the yard and have the next order placed under the roof of a plant building.

* * *

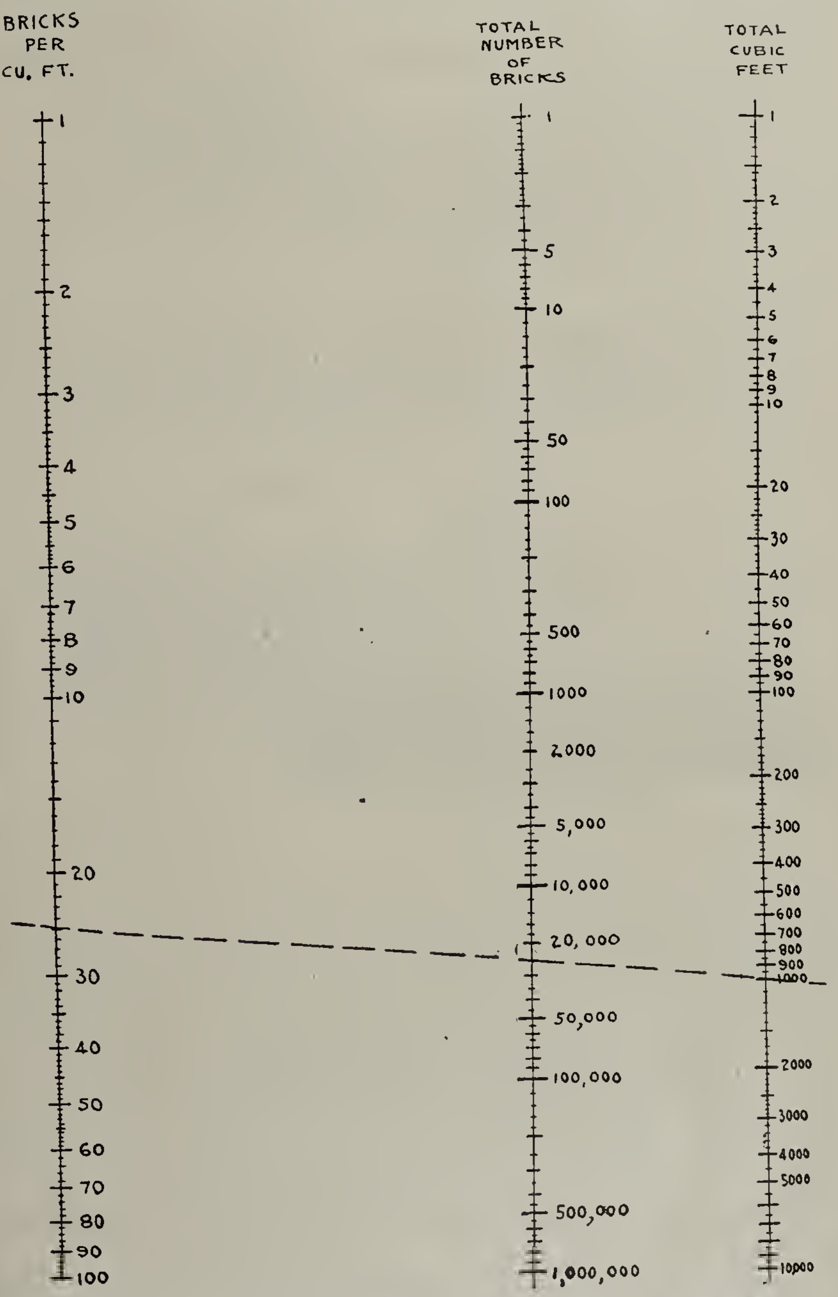
A Labor Saver at Inventory Time

A chart that will be found of incalculable value on a brick or tile plant is shown in the accompanying illustration. It is used for computing the number of brick or tile in a certain pile on the yard and eliminates any figuring whatever, either "longhand" or mentally—a fact that makes it especially valuable at inventory time, when it will save a large amount of calculation. All that is necessary in determining the number of brick in the pile is to lay a straight-edge across the chart.

For example, supposing a brick is made which averages twenty-five to a cubic foot, and there is a pile of them 10 x 10 x 10, or 1,000 cubic feet. Connect the number of brick per cubic foot, found in the left-hand column, with the number of cubic feet in the pile, in the right-hand column, with a straight-edge and at the point where it cuts the middle line is indicated the number of brick in the pile. In this case it amounts to 25,000.

The chart is good for any size brick or tile from one to one hundred per cubic foot, and it includes all volumes from one cubic foot to 10,000 cubic feet. Thus, if a brick were made so small that there would be one hundred in a cubic foot, 10,000 cubic feet would mean 1,000,000 brick—the limit of the chart.

This same method is used in figuring the number of hollow-tile in a given pile, but the result, of course, would be considerably lower than in the case of brick.



This Chart and a Straight-edge Are All That Is Necessary for Determining the Number of Brick or Tile in Any Pile, Quickly and Accurately.

The chart could also be used "backwards" if desired. Knowing the number of brick in the pile and the number of brick per cubic foot, the total cubic feet in the pile could be determined. Any two points determine the third. —*N. G. Near.*

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The Semi-Monthly Trade Review

A SHORTAGE of brick and burned clay building materials is threatening for the coming winter, since the advance of that seasonal giant is finding almost every plant in the country with depleted stocks, so good has been the demand for their products during the year which is now drawing to a close. But little can be done to forestall this shortage since it is the exceptional plant that is capable of taking up another notch in its operations and realizing a bigger production than is now being maintained.

Aside from the car and labor shortages, conditions at the present time, with but few exceptions, are exceedingly satisfactory. Building is proceeding in good volume and the consumption of materials has been very great. The aforementioned exceptions, however, are presenting very grave problems in some sections of the country, shipments being held up for a period of from two weeks to more than a month on the one hand, and the continued operation of the plants being menaced on the other.

HUDSON RIVER COMMONS TAKE AN UPWARD SPURT

A higher price is now being obtained for brick in New York than for several years, at this period. Common-brick a year ago was plentiful at $6.50 to $6.75 a thousand and now it is selling at from $7.75 to $8.00 a thousand, and hard to get at that price. Other building materials have also risen in price but their advance has been far sharper than that of brick. During the last week in October, forty-six cargoes of Hudson river commons were distributed in Manhattan and vicinity, despite the fact that there is trouble with the hod-carriers. An unusually large supply of second-hand brick has lowered the price of that commodity to about four dollars for a load of 1,500, and buying is consequently very strong. Many of the Hudson river plants are preparing to shut down for the winter.

Boston, Mass., manufacturers are finding it difficult to keep apace with orders and a shortage is expected to result.

PHILADELPHIANS WELL PLEASED WITH BUSINESS

Business with the building brick manufacturers of Philadelphia and vicinity, according to collective and individual reports received from members of the industry, is of particularly satisfying volume for this season of the year. For weeks past the demand for building brick of nearly all descriptions, terra cotta trimming and tile has been so heavy that nothing short of capacity operations could be entertained by any of the Quaker City plants. Not only has the demand been especially heavy, but prices have increased materially, thus repaying the manufacturers for such advances in wages as they have been forced to concede to their men because of the extreme scarcity of labor in that vicinity. Present indications for a continuance of this healthy demand with the Philadelphia manufacturers are considered good.

Like other burned clay building materials, sewer-brick has been experiencing an exceptionally heavy demand within the past month and the consensus of opinion is that the past season will prove one of the best business periods witnessed by the Philadelphia manufacturers of this product for several years. Already a large amount of sewer work has been done by the city and bids on materials to be used in one hundred and fifty sewers to be built in that city were let during the latter part of October. These sewers will be constructed mostly of brick as the city engineers have expressed a decided preference for that material.

Conditions prevailing in the paving-brick division of the industry of Philadelphia, however, have been the reverse of those which have characterized the other branches. The demand for this material thruout the year has been rather quiet, but manufacturers look forward optimistically to the coming year to make up for the bad business of 1916.

CAR SHORTAGE AND COAL PRICES HARASS BUCKEYES

Considering the car shortage and high prices of building materials, the demand for brick thruout Ohio may be said to be very active. A lack of cars, however, is a source of much disturbance. While the carriers claim that they are giving about seventy-five per cent. car supply, most of the manufacturers place this figure at nearer sixty per cent., and gradually decreasing. Shipments are delayed anywhere from two weeks to a month, and even longer. Labor is constantly increasing in price, raising the cost of production by leaps and bounds. Coal prices in this section are mounting to unheard of levels, increasing from $1.35 to $1.50 a ton at this time last year to from $4.50 to $5.00 this year. As a result the cost of burning alone has been increased by three or four dollars a thousand. Many of the plants in this vicinity, according to the manager of a large face-brick company, will find it necessary to abandon operations if prices do not lower considerably, or else effect an increase of about two or three dollars a thousand in the selling price of their product.

CINCINNATI BUILDING SHOWS FALLING OFF

Building statistics in Cincinnati show a falling off during the month of September of this year when compared to last, the value of improvements being $847,515 and $1,264,444 respectively, for the two periods. Car shortage is causing much trouble for the dealers in this city, since most of them get their supplies from plants at distant points. This, together with the high price of common labor, is having a decidedly retarding effect upon building in Cincinnati.

FAVORABLE WEATHER HELPS LOUISVILLE OPERATIONS

Some larger orders are beginning to materialize in and around Louisville, Ky., due perhaps to the favorable weather that is keeping building active. Owing to the car shortage, practically every manufacturer is

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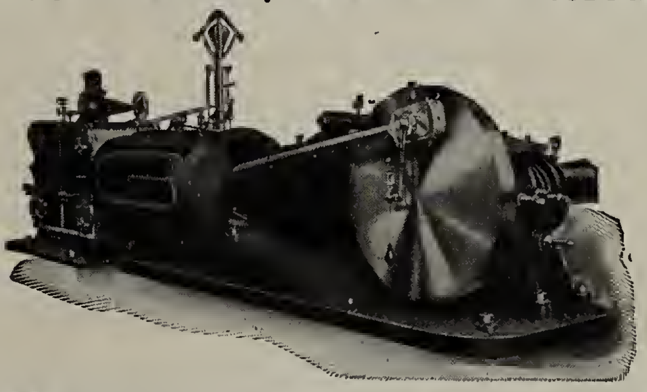

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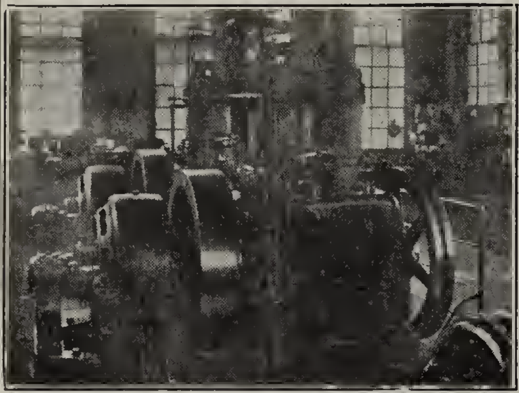

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from two weeks to thirty days behind on his orders, while the dealers are receiving shipments that are at least thirty days late. Coal supplies are also causing some apprehension on the part of the manufacturers, since deliveries on this most important commodity are usually several days behind.

CHICAGO, THE NORTHWEST AND MIDDLE WEST

Chicago has suffered from a big slump in building, the value of operations during the week ending October 28th being only $1,510,300 as compared with $1,986,300 the preceding week and $2,498,900 a year ago. In the Northwest, however, construction has been very active, a total of the building done in Minneapolis, Minn., during the first ten months of this year exceeding the total of all of last year's building. Conditions are similarly favorable thruout the middle western states, all the plants being rushed to capacity to supply the heavy demand that has resulted from the active building going on.

DEMAND IS GOOD ON THE PACIFIC COAST

In San Francisco, important constructional work now under way promises to take about all the common-brick that can be manufactured for some months to come. There will not be as large surplus stocks as in years past and brickmakers will undoubtedly operate their yards longer than usual if weather conditions are halfway favorable. The present season is turning out far better than was predicted at the beginning of the year and the outlook for next year is exceptionally good, owing to the increasing industrial and commercial prosperity on the Pacific coast. Many public improvements in building, road and sewer work have furnished an outlet for clay products of three different types in large quantities.

Fire-brick manufacturers report that business has settled down to a carload basis now, but that the season has been much better than last year. Prices on this material have not been advanced, altho practically no foreign competition is felt. Hollow interlocking tile has been making steady headway as a building material on the coast.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host
of Interesting Happenings in the
Varied Fields of Clayworking

Personal

J. T. Roberts, president of the Stockton Fire Brick Company, has been on a business trip thru southern California, going as far south as San Diego, this month.

Edward H. Putnam, publicity manager of the Atlantic Terra Cotta Company of New York City, is with the militia on the Mexican border.

J. P. Turpin, formerly a salesman employed by the Ironclay Brick Company of Columbus, Ohio, has accepted a position as traveling salesman for the Straitsville Impervious Brick Company of New Straightsville, Ohio.

W. C. Hughes, representing S. A. Weller of Zanesville, Ohio, was a recent trade visitor to Louisville. He called on numerous retailers in that city and took a good many satisfactory orders from the florists who are carrying lines of jardinieres, etc.

Thomas Young, who was for many years manager of the Lincoln (Ill.) Brick Company, once a thriving concern, died in Bloomington, Ill., at the age of eighty-four years. Mr. Young was a civil war veteran and noted as one of the pioneers of Logan county industry.

F. W. Ervin of the Denver (Colo.) Pressed Brick Company has returned to Denver after an extended picture-taking tour of Mt. Eva and thru the wilds of the Rockies. Many beautiful photographs have been produced from the exposures made on the trip.

A. S. Cunningham, superintendent of the Ione (Cal.) Fire Brick Company's plant, has resigned his position. He is succeeded by William Brown, an experienced brick man of Ione. Mr. Cunningham came to Ione nine years ago and built the plant there.

William H. McConoughey, formerly with the Farr Brick Company, Cleveland, Ohio, will be East End man for the Euclid Builders' Supply Company of that city from now on. In the territory which Mr. McConoughey will cover he has an enviable acquaintance among contractors and builders.

Daniel E. Reagan, whose name in the industry is synonymous with rough-textured face-brick, and whose business connections are with the Hocking Valley Products Company of Columbus, Ohio, is making a western business trip. He gave Chicago the "once-over" for a period of about forty-eight hours, during the latter part of October.

Charles E. Scholl, part owner of the brickmaking plant at Clio, Mich., lost his single blessedness when, on October 9th, he promised to "love, honor, and cherish" Miss Josephine Jackson. The nuptial knot was tied in the bride's home at Detroit in the presence of many friends and relatives.

Charles W. King of Meriden, Conn., an official of the Central Connecticut Brick Company, New Britain, has filed suit for $1,500 against Alex Helene of Hartford as the result of an automobile accident in which both were concerned. Mr. King alleges that Helene was driving at an unreasonable speed and on the wrong side of the road.

Clifford Woglom, formerly of Perth Amboy, N. J., and well known in Philadelphia, where he held a responsible position with the Conkling-Armstrong Terra Cotta Company, was killed on October 23rd, at Newfields, N. J., by a railroad train. Mr. Woglom was at one time identified with the clay industry in the Raritan river district, where he had many friends.

A large number of employes of the American Terra Cotta and Ceramic Company's plant at Terra Cotta, Ill., gathered at the Woodman Hall in Crystal Lake, Ill., recently to give a farewell party to their former superintendent, Ernest Clark, who has resigned that position to seek his fortunes in other fields. Mr. Clark was presented with a large silver loving cup, a gift from his former co-workers.

William Theodore Walker, president of the Walker and Frank Brick Company, Detroit, Mich., died suddenly on October 19th from an attack of heart trouble. Born in Birmingham, England, in 1846, Mr. Walker left his native land in 1888 and came to America, settling in Detroit. About thirteen years ago he became interested in the

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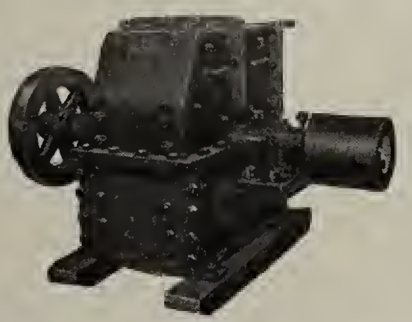

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We also make "Sero" Gear and Cable Coating and Manilla Rope Dressing.

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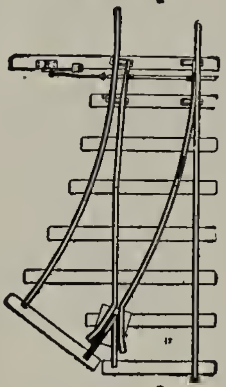

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Dry Kiln Door Carrier Co.
Indianapolis, Indiana

Springwells Brick Company of that city and later became a member of the firm which took over the business.

Thomas B. McAvoy, president of the McAvoy Vitrified Brick Company, Philadelphia, Pa., is gradually recuperating from the weakening effects of a recent illness with which he suffered and it is expected that he will soon be able to pay his customary visits to the company's offices. Mr. McAvoy, by reason of his age of seventy-eight years, was more severely handicapped by his recent ailment than a younger person would ordinarily have been, but the manner in which he has fought off the effects of the malady would do credit to one much younger than this pioneer member of the industry.

W. J. Gilbert, president of the Chicago (Ill.) Fire Brick Company, and J. D. Davis, president of the Davis Fire Brick Company of Oak Hill, Ohio, were at Ottawa, Ill., recently, looking over the clay deposits located between Marseilles and Seneca, which the Chicago Refractories Company, with which they are connected, recently purchased. The Chicago Refractories Company is now being organized, and indications are that Mr. Gilbert will be president of the concern and W. C. Vittum of Ottawa, vice-president. The company will soon start shipping its clay, already having a contract for four hundred tons a day, and intends eventually to erect a brick manufacturing plant at the mines.

L. E. Armstrong, president of the Plymouth Clay Products Company of Fort Dodge, Ia., recently spent two weeks in Chicago investigating the proposition of building a modern common-brick plant in the "I Will" city, now under consideration by the Standard Materials Company with which Mr. Armstrong is associated. Long years of unusually successful experience in the clay products manufacturing industry insures a thoro and intelligent handling of both the construction and operation of the proposed plant under Mr. Armstrong's guidance, while the large trade in common-brick that has been built up in Chicago by the Standard Materials Company insures a ready distribution of the company's product, should the plant be built.

Leonard B. Coulter, age thirty-five years, ceramic engineer, head of the ceramic department of the Carborundum Company, Niagara Falls, N. Y., and one of the best known ceramic engineers in the country, died late Thursday, October 26th, following an illness of eight months at his home at the above point. The deceased was born in Oxford, Ohio, near Cincinnati. He graduated from Miami University of that town and afterward also from the Ohio State University of Columbus, where for several years he was associated with professor Edward Orton, Jr., of the ceramic department. The late Mr. Coulter was a member of the American Ceramic Society and the American Electro-Chemical Society. He leaves a wife and one daughter. Funeral services were held Friday afternoon at 5:30 o'clock from his late home in Niagara Falls, following which the body was shipped to Fort Worth, Texas, for interment.

Arkansas

Taking advantage of a large industrial exhibit to be held at Texarkana, Ark., from November 7th to 11th, the Texarkana Pipe Works, manufacturers of sewer-pipe and other clay products, has issued a program of the events to take place, upon the cover of which is printed a very cordial invitation to those attending the show to visit the company's exhibit. An offer is also made to keep open house for its customers and friends at its place of business during the show.

California

The Simmons Brick Company of Los Angeles, Cal., has decreased its capitalization to $300,000.

The pottery works conducted by George L. Brown at Santa Rosa, Cal., was damaged slightly by fire during the past month.

A report has been received that parties have been investigating certain clay properties in Corona, Cal., with a view to purchasing them and starting a clay products plant at that point.

Brick may develop a big market in the rural districts of California if present prospects materialize. Two huge brick silos have been erected on the ranch of Ben A. Rhodes of Los Angeles and, if these prove satisfactory, no doubt the idea will be widely copied.

The Steiger Terra Cotta and Pottery Company has been awarded the contract for supplying the terra cotta to be used in the new Carnegie public library at Sacramento, Cal. The building, when completed, will cost about $130,000.

The Public Safety Committee of the Los Angeles (Cal.) city council has submitted a recommendation to amend the building laws, to permit concrete or terra cotta construction of flue vents for heating appliances in buildings. As it is now, such construction is limited to galvanized iron.

A large fire-clay deposit located at Fish Valley, about fifteen miles from Coalinga, Cal., is to be tested and developed, if the results are satisfactory. R. S. Glenn, formerly of Portersville, Cal., is the owner and has left that city to investigate his deposit at Fish Valley.

The manufacture of hollow building tile has recently been undertaken by the Pioneer Brick Company of Visalia, Cal., and, judging from present indications, a heavy demand for this product will be realized. The company reports doing an excellent business, and has just received an order for 350,000 brick for a new high school to be built in Wasco, Cal., and another for 750,000 brick to be used in the new Hotel Johnston to be constructed at Visalia.

The Stockton (Cal.) Fire and Enamel Brick Company was recently awarded a decision against the Southern Pacific Company in which that carrier was ordered to refund charges made in excess of eighty cents a ton for the shipment of boulders from Midas to the company's plant at Hislop, Cal. This amounted to about $805 for shipments made this year prior to the date of the hearing and will, it is believed, mean a total saving of about $2,000 a year in the future.

Delaware

It is reported that brick manufacturers at Wilmington, Del., are seriously considering an advance in the price of their product. In the past two years an increase of only fifty cents a thousand has been made in the selling price of that commodity in Wilmington, but the heavy demands of labor, coupled with its scarcity, are forcing an additional increase in the price of brick.

District of Columbia

There is a scarcity of labor among the brick yards near Washington, D. C. Local concerns are having trouble in securing enough men to properly carry on their work.

Boss Ten Hour DRYER
The only tender clay dryer on the market

Boss System of BURNING BRICK
Will easily cut your present fuel bill half in two

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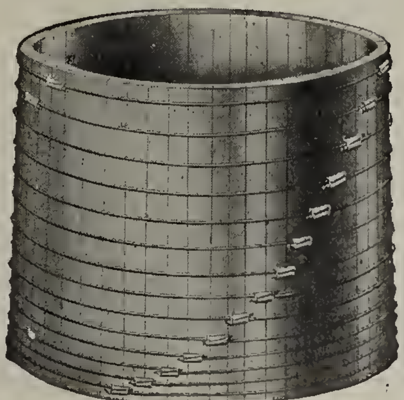

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You can't get the kilns unloaded on time—You can't prevent accumulated demurrage on cars—You can't have satisfied hustling wheelers—

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You have a fleet of

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Look!

IT IS BALANCED

The axle is under the load—NOT at one end of it.

It slides—down the runway—and the hind legs don't rip and tear.

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This book is understandable throughout.

It gives a correct viewpoint with regard to the use of heat in the power plant, and supplies the tools required for the solution of power plant problems of the common sort.

Mathematical treatment of the subject has been eliminated to the greatest possible extent.

The book contains a large number of carefully chosen illustrations, which will be found especially valuable.

And anyone familiar with elementary algebra should be able to understand readily such equations as it has been deemed necessary to include.

428 *pages*, 5¼x8, 232 *figures*. *Cloth*, $2.00 *net*.

On Sale Thru "Brick and Clay Record's" Book Department, 445 Plymouth Court, Chicago, Ill.

Several of the brick companies having plants in the vicinity of Washington, D. C., are much embarrassed for lack of coal. A couple of the firms have had to haul their fuel from Rosslyn and other Virginian cities nearby, being unable to obtain it in Washington. Coal is costing fifty per cent. more now than a couple of months ago.

The West Brothers Brick Company, Washington, D. C., has just purchased a five-ton motor truck, to try out in hauling its product from the plant in Virginia to Washington. The new truck will carry about 2,000 brick and, it is claimed, will haul an additional 2,000 on a trailer. Up to this time the firm has not purchased the trailer. The truck is in the nature of an experiment. Exact figures are to be kept to see if it will prove more economical than horses or mules and wagons.

Idaho

Operations have been started at the plant of the Moscow (Idaho) Fire Brick and Clay Products Company and the company is now manufacturing fire-brick. John Nisbet, secretary, was well satisfied with the start made by the new plant, stating that every piece of machinery operated perfectly. Tom Hall is superintendent of this plant.

An order for 23,000 fire-brick was recently secured by the Moscow (Idaho) Fire Brick and Clay Company from the Willamette Paper Company of Portland, Ore. The Moscow company has just recently started its new plant, and the order, coming as it does after a trial of the company's product, indicates that a high-grade fire-brick is being manufactured at the new plant.

Illinois

The plant of the Eastern Illinois Clay Company at St. Anne, Ill., has been completed. Six thirty-two-foot kilns have been built and modern machinery installed. About thirty-five men will be employed at the plant when it is ready for operation.

New machinery has been installed at the brick manufacturing plants of East Peoria, Ill., and from all indications they will be in operation thruout the winter. The plants are now running to full capacity, turning out brick for local and out-of-town consumption as fast as possible.

A very high recommendation of the "monolithic" brick roads in and around Stockton, Ill., was given by a special committees of the Peoria (Ill.) county board upon its return from a trip of inspection that was started on October 18th. The committee also reported on other types of roads it had inspected.

The Streator (Ill.) Clay Manufacturing Company has been added to the family of wire-cut-lug paving-brick manufacturers. This company has just started operating its new plant, which has a daily capacity of 60,000 pavers. R. H. Green is president of the concern, James A. Green, vice-president and John Connelly, secretary.

If a judgment regarding the condition of building in Decatur, Ill., may be based upon the activity of the contractors in that city, the past season has been better than for several years. A lack of brick-masons is felt very strongly in that municipality, the demand for brick construction being sufficient to keep several more of them busy.

The brick plant operated at Waterloo, Ill., by James Burkhardt is enjoying an exceptionally good business and is running to capacity. It is reported that two more kilns are to be erected at this plant, the equipment for which is already on the way. The Mobile and Ohio railroad is planning to stop its trains at the factory for the accommodation of the workmen.

The plant of the Western Stoneware Company at Macomb, Ill., has temporarily suspended operations, since the fall rush is now over and the winter business will not begin for several weeks. All of the men, however, will not be laid off since the plant will be run short. Plant No. 1 of this company, located at Monmouth, Ill., has been closed for several weeks, but is soon to be opened, according to I. F. Dains, president of the company.

An innovation in clay plant practice—something really new—was introduced by the Western Brick Company of Danville, Ill., recently, when it turned its large machine room into an evangelistic chapel and co-operated with Evangelist Jack Masters in giving a ten-day series of sermons during the noon-hour. Out of the four hundred and fifty men on the plant, it is estimated that about two hundred attended these meetings, which were made up of ten minutes of song by the entire assemblage and twenty minutes of sermon by the young evangelist.

According to the predictions of A. W. Gates, organizer and president of the Gates Fire Clay Company, Colchester, Ill., the company's plant will be entirely completed and in operation some time in February. A three-story machine-room building, an engine house, a drier and four kilns will be erected. It is expected that the battery of kilns will rapidly be increased after the plant has commenced operations. The clay and coal for the plant are located on the company's grounds, thus eliminating many of the usual expenses attached to getting the fuel and raw material. At first, the sole product will be fire-clay flue lining, altho later, other clay products may also be manufactured.

Indiana

A preliminary certificate of dissolution has been filed by the Warrick Roofing Tile Company of Newburg, Ind.

The Martinsville (Ind.) Brick Company has recently started the manufacture of wire-cut-lug paving-brick. This company's plant has a capacity of 30,000 brick a day. E. J. Poston is president of the concern, B. C. Poston, vice-president and C. E. Sweet, secretary.

Articles of incorporation have been filed with the county clerk for the Cannelton (Ind.) Clay Products Company. The company intends to manufacture and sell clay products and its incorporators are M. F. Casper, Henry Heck and T. W. Irwin, of Cannelton.

Recognizing the immense market that is being opened up for paving-brick by the national sweep of good roads enthusiasm, the Clay Products Company of Brazil, Ind., is about to build a large paving-brick plant, in connection with its other plants at that point, that will have a daily capacity of 10,000 brick at the start. According to a statement made recently by F. A. Rodgers, salesmanager of the company, the merits of brick as a road building material are forging to the front.

The quality of the new high class rough-textured face-brick now being manufactured by the Standard Brick Company of Evansville, Ind., has resulted in a large number of orders from many out-of-town concerns. The company shipped a big quantity of the brick, which is known as "Rugby," to Norris City, Ill., about the middle

THE plant is at Canton, Ohio, but the bricks are used pretty nearly everywhere. "Metropolitan" is stamped boldly on the side of every one of them—*burned in to stay*, because the makers' quality makes the brand stand for something. Now

"MARIONS" Take Out the Clay for 200,000 "Metropolitans" Daily

—and as a proof of their respect for the way our Shovels do things, the Company has recently bought another "Marion"—their fifth—with the encouraging comment that if they need more equipment, "more 'Marions'" would be their choice.

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Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

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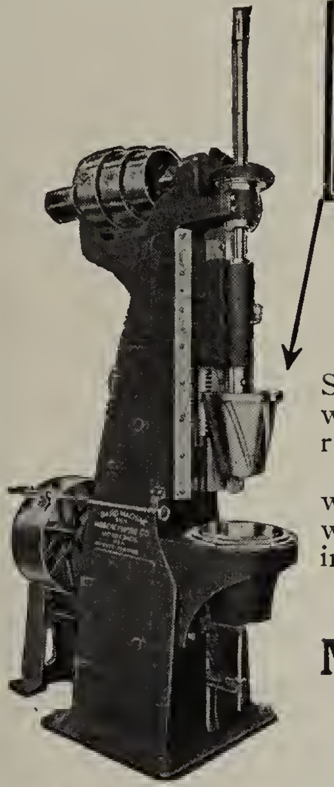

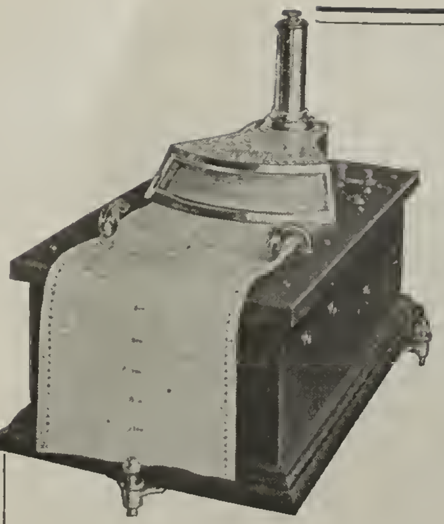

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Price Pyrometers are constructed for hard usage—they are strong and serviceable—dependable—and, above all, they are accurate.

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for Practical Men

An aid to beginners and full instructions
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of October, where it is to be used in the construction of the new First National bank buildings. Orders also have been received from West Baden, Ind., and Chicago, Ill., where new Methodist churches are being erected.

R. L. Akers, proprietor of the Jeffersonville (Ind.) Brick Company, is still undetermined as to what course to pursue. His old brickyard, which was sold by him to the Pennsylvania railroad, has not been dismantled and Mr. Akers has been approached by the company as to whether he would take charge of the plant and operate it for a year or so on a salary. These negotiations are pending and, meanwhile, Mr. Akers is not pushing his project for a new yard. If the proposal of the Pennsylvania does not develop Mr. Akers plans to open an office in Jeffersonville with a line of brick, both common and face, in order to keep himself before the public until such time as he is in position to get a new plant in operation.

After being out on a strike for eleven weeks, employes of the American Sewer Pipe Company, Brazil, Ind., recently voted to return to work and the plant is now in full operation again. The agreement to return includes an increase of twenty-five per cent in wages and a nine-hour day. The union, however, is not recognized. The action of the employes of the sewer-pipe company is taken as an indication that the clay plant workers' strike at Brazil will soon be ended. Men formerly employed at the plant of the Brazil Clay Company have also returned to work under a similar agreement. It is predicted that similar action will be taken at the other five plants where the strike has been in progress.

Business men of Connersville, Ind., in a meeting held about the middle of October formed a corporation known as the National Moorish Tile Manufacturing Company and announced a capital stock of $50,000. The following officers were elected: E. P. Hawkins, president; Charles A. Rieman, vice-president; Marion K. Jemison, treasurer, and Ward Halliday, secretary and general manager. Those interested voted to build a factory at once to engage in the manufacture of tile for floors, such as are found in hospitals, office buildings, postoffices and like institutions. There is said to be a great demand for this product and sufficient orders have already been received to keep the plant busy for the next six or eight months. The new enterprise will be housed in a brick building, in the eastern part of the city, which was once occupied by a carpet factory. It is said that the building is of sufficient size to care for the company's output for the first year, but it is expected that in the future a larger and more modern structure will be erected.

Iowa

At a recent meeting of the Mason City (Ia.) school board it was decided to let the contract for 185,000 face-brick for the new high school under construction at that point to the Western Materials Company of Waterloo, Ia.

Kentucky

The capital stock of the Paducah (Ky.) Clay Producing Company has been reduced from $250,000 to $30,000, and its bonded indebtedness lowered from $30,000 to $15,000. The incorporators of this company are J. W. Pyror, H. T. Duncan, Henry B. Wilson, J. Q. Hodges, J. K. Callis and J. D. Yarrington. The company owns clay mines in Marshall county, Kentucky.

Walter Brashear of Louisville, Ky., has been awarded the general contract on the new Shelbyville (Ky.) public school, at $31,567, the lowest bid out of fifteen received.

This will be a two-story structure and basement above grade, brick with a rough-textured facing, stone trimmed. Partition walls will be of brick and the walls of class rooms will be finished with glazed brick. The contracts for these supplies have not been let as yet. Joseph and Joseph, Louisville, are the architects.

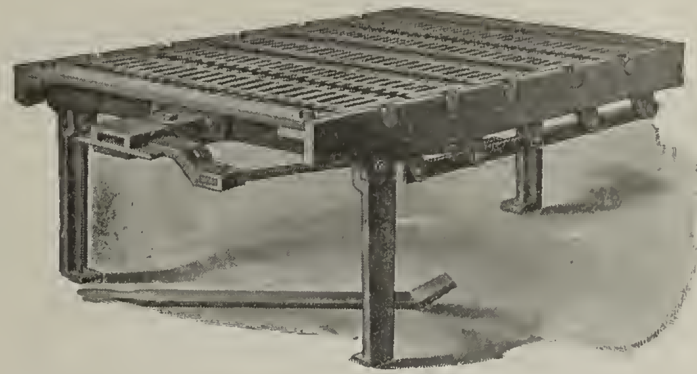
The Tyler Building Supply Company, Louisville, Ky., has recently booked several good face-brick orders. One calls for "Equitable Grey" brick for the new front of a Fourth street store building, which is to be remodeled. Some terra cotta will also be used in this job but the plans have not progressed to the point where they are ready for estimates. The company has the contract for the commons and face-brick for a new church at St. Matthews and has the common-brick contract for the new addition to the plant of the Louisville Provision Company. The company finds business good, altho the orders are still for the most part small in volume.

Rather general hopes are being held out concerning the Interstate Commerce Commission hearing which began in Louisville, Ky., on November 3rd, with railroad managers giving data as to why and how the car supply is short, that it will bring results. An effort is being made by many of the shippers to get an order for increased demurrage rates after a reduced free time. It is also proposed that inquiries in advance of consignments establish the ability of the consignees to unload and release a car promptly. All of the Louisville brick and clay products manufacturers are doing their part to expedite the movement and get all the service possible out of cars. Railroad officials have pointed out that if shippers would do all they could in this matter, there would be marked relief.

Brick building contractors of Louisville are chafing somewhat under a new order of the Board of Public Safety, which prohibits them from continuing the heretofore unquestioned practice of establishing mortar beds on the streets or at the edges of the sidewalks. In the future these beds will not be permitted on streets, sidewalks, alleys or on any other public property. The reason for the rule is that a number of persons have sued the city for damages alleged to have been sustained when they fell into mortar beds. The Court of Appeals has recently upheld a damage verdict on these grounds, the verdict award being $4,000, of which the city could realize only $2,500 from the bondsman in the case. From the earliest days of brick construction in Louisville the mortar bed beside the curb has been a part of every building operation.

A. P. McDonald, salesmanager for the P. Bannon Pipe Company, Louisville, Ky., stated that his company is doing its utmost to limit the evils of the car shortage situation by loading cars as fast as possible after they are delivered and informing the railroad to that effect. Just as soon as a car is placed on the sidings of the company a crew of men is put at work getting the load in, no matter what time of day or night the car is "spotted." "Get 'em loaded and get 'em out" is the shipping department's motto these days. Mr. McDonald said that he thought car shortage was less pronounced than it had been and rather expects that the winter months will see a lessened demand in a good many lines for cars that can be used by the brick trade. At that, the company is thirty days behind on shipments. Business is good and the company is extremely busy.

Kiln Temperatures Controlled



The Canton Kiln Grate

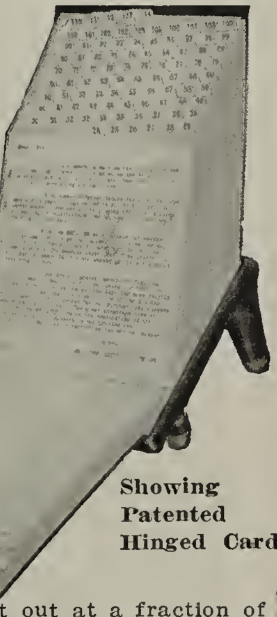
A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

Handle Office Detail the DICTAFORM Way



Showing Patented Hinged Card

The first purpose of the DICTAFORM was to save dictating time—to make easier the handling of correspondence. But DICTAFORM owners have found a score of other uses just as valuable. Data that formerly was in pigeon holes, drawers, on walls and under glass desk pads has all gone into the DICTAFORM —placed at fingers' tip.

Stops Dictating Time Waste

The DICTAFORM places at instant reference—paragraphs, phrases, and arguments sparkling with your own individuality. You think out your strongest answers to a question, classifying the argument under its proper heading, and put it into the DICTAFORM. Through continuous use of these prearranged paragraphs and letters, you will be able to get out at a fraction of the former cost—ten times the volume of correspondence possible if each letter was dictated separately.

A Handy Office Assistant

The DICTAFORM places immediately before you your prices, sizes, weights, descriptions, ideas, campaign schedules, proofs of cuts, cost estimates, time tables, lists, addresses and phone numbers—in fact, everything to which you have occasion to refer.

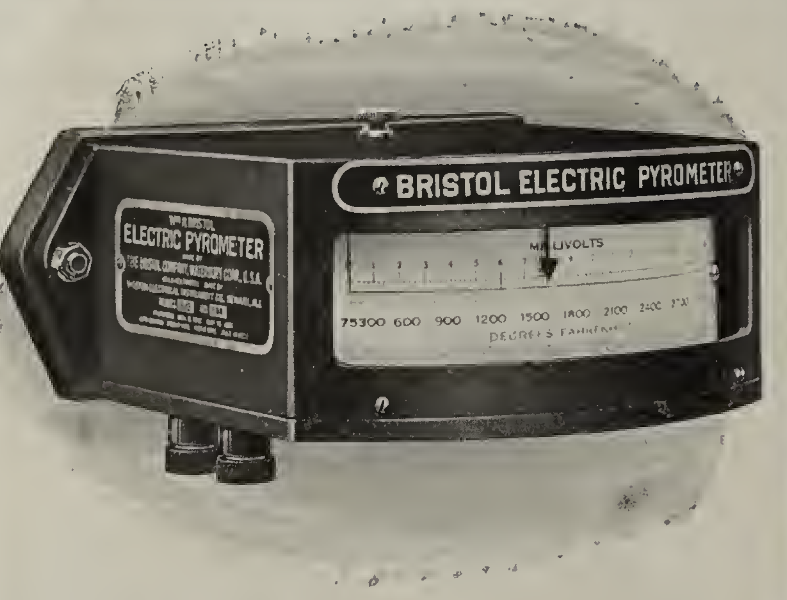
Note These Features

Loose leaf, hinged cards, that tip into perfect reading position. Leaves locked in so they are always in place. Changes can be made as often as you like, for you merely attach data to the card body. Headings on index cards can be changed to suit your requirements. No carbon copies necessary—number notations on incoming letters answer this purpose.

Write for FREE Trial Offer

Write for descriptive circular on the new Meilicke DICTAFORM and for details of our free trial offer. Or, better still—send $12 for one Meilicke DICTAFORM. Money refunded if not satisfactory.

MEILICKE CALCULATOR CO.
376 North Clark Street CHICAGO, ILL.



EQUIPPED WITH
WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

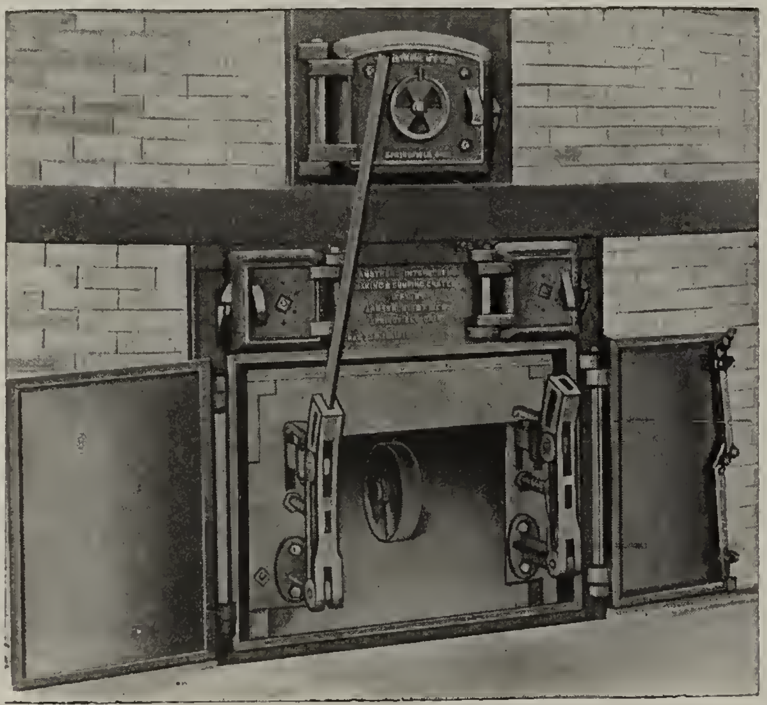
BRISTOL'S
ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. **Waterbury, Conn.**

Branch Offices: Boston New York Pittsburgh Chicago San Francisco



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

October broke all records for the Louisville (Ky.) Fire Brick Company, according to J. H. Bell, salesmanager. It went so far ahead of any previous month that there is no comparison, the thirtieth of that month bringing orders for seventy carloads of the company's product. Mr. Bell stated that orders were piling up in a most pleasing way and that there was every indication from inquiries and statements coming from the customers of the company that the business would continue on the present basis for another year at least. The company completed the addition to its plant at Grahn, Carter county, Ky., during the past month and it is now in operation, this meaning an output of about 25,000 more brick or three carloads a day, and raising the total output of the company from fifteen to eighteen cars daily. The Carter county plant, being nearer the coal fields, is not in any trouble as to the fuel supply, but the matter of cars for shipping is hampering matters to a considerable extent.

Louisville brick and tile men are in thoro accord with the fire insurance officials who have ruled that no private or other garages may be built in Louisville hereafter, unless they are either fireproof or "made as slow burning as possible." City Building Inspector W. J. O'Sullivan is declining to issue permits otherwise, abiding by the regulations recently issued by State Fire Marshal T. B. Pannell. Heretofore, any kind of a shed has served as a private garage outside of the fire district. Many of the applicants for permits to put up garages have been sadly disturbed by the ruling, violation of which subjects the violator to possible fines of from $10 to $100 and up to thirty days in jail. This is under the new fire code of the state. A consequence is that the items in the report of the building inspector continue to note more hollow-tile garages than formerly was the case. Live salesmen for the manufacturers of and the dealers in this material "spot" a prospect as soon as they read or learn of a man who has bought a new car.

Maryland

Many improvements are being planned for the Easton (Md.) Brick and Tile Company by its manager, Frank A. White. Among other improvements to be made is the installation of several round down-draft kilns.

Massachusetts

Thieves broke into the Chelsea, Mass., yard of the Parry Brick Company recently but, so far as could be learned, took nothing more than four bolt dies, valued at about $7, from the blacksmith shop.

Unusually good fall weather in New England is proving a boon to the brick manufacturing industry and is enabling the yards to keep in operation, many of them practically twenty-four hours a day, and thus allowing them to catch up to some extent on their orders. Few if any of the yards have closed down as yet for the winter and prospects are for at least another month of activity in most centers.

Michigan

The Grand Rapids (Mich.) Brick Company is making plans to increase its kiln capacity and to make other improvements at its plant. Its present battery has a capacity of 175,000 brick and, when the improvements are made, it will have been increased to 300,000. This company also plans, in the near future, to start a sand-lime brick plant to be operated in conjunction with its clay plant.

Minnesota

The soft-mud brick plants of Minneapolis, Minn., are down for the winter. Without exception, they report having had an unusually busy season, but look forward to an even better business for next year.

Missouri

The Liberal (Mo.) Impervious Brick Company has been incorporated with a capital of $60,000 to manufacture brick.

New Jersey

The South Amboy (N. J.) Terra Cotta Company has secured the order for the terra cotta to be used in one of the new Bush Terminal buildings in New York City. The South Amboy firm was successful in a field of several bidders.

Clay products manufacturers in the Raritan river section of New Jersey say that, while business is generally good at the present time, the coming year will see a great boom in their business. They point out that a large amount of building will take place next year.

The plant of the National Park (N. J.) Brick Company, which was purchased early this year by D. B. Curll of Philadelphia, Pa., has closed for the winter. Many improvements have been made on the plant since Mr. Curll has become its owner and further changes are to be made during the winter.

New Mexico

The Ancho Brick Company has been incorporated at Ancho, Lincoln county, New Mexico. It has a capital stock of $450,000, and its purpose is to build and operate a large brick manufacturing plant at the above point. The incorporators and directors are: J. E. Morgan and John Franklin of El Paso; O. V. Rye and S. W. French of Douglas, Ariz.; M. Earle of Des Moines, Iowa; S. Heyfield of Ancho, and T. H. O'Brien of Dawson, N. M.

North Carolina

The first kiln of brick made by the Shale Paving Brick Company on the plant it recently purchased from the Pine Hall (N. C.) Brick and Tile Company, has been burned and a good start made by the new owners in the operation of the factory. Many changes have been made under the new ownership, which include, among other things, the installation of modern machinery throut the plant. A ready demand exists in this locality for the company's product and the enterprise will undoubtedly realize success.

Ohio

The National Roofing Tile Company of Lima, Ohio, is to be reorganized and the manufacture of fireproofing and hollow-brick is to be undertaken in the near future.

The Barkwill-Farr Brick Company, the newly incorporated $4,000,000 concern of Cleveland, Ohio, has purchased a tract of fifty acres of land on Bradley road from the Kirk-Christy Company. A large brick manufacturing plant will be erected upon the site.

A large face-brick order has been secured by the Cleveland (Ohio) Builders' Supply Company for the new factory of the Realty Holding Company, located at Marselline and Grant avenues, that city. This order calls for 150,000 face-brick.

With the Camp Conduit Company of Cleveland, Ohio, business is coming faster than it can be handled, President

The problem of maintaining tight valves is most effectively solved --when you equip with--

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

Jenkins Bros.

80 White Street. New York. 524 Atlantic Avenue. Boston.
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REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

If the Grade is Sufficient—Gravity Supplies All of the Power

B. & B. Friction Grip Aerial Tramway

requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

BRODERICK & BASCOM ROPE CO.

New York ST. LOUIS, MO. Seattle

SAY I SAW IT IN BRICK AND CLAY RECORD

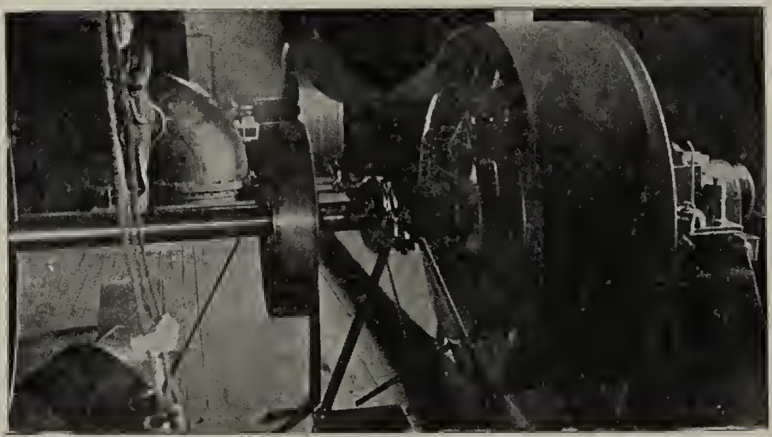
The Standard Brick Drier

is always sold with a specific guaranty covering the results it is expected to produce.

Under these stern conditions it has been making good, on all varieties of clays, for 30 years.

If you are thinking of making a change in your drying arrangements, write us and we will tell you exactly what we will guarantee The Standard Drier to do in *your* case.

Securing this information will not put you under the slightest obligation to buy. Address:
The Standard Dry Kiln Co.,
1540 McCarty St., Indianapolis,
Ind.



27 Cents Per Year for Cling-Surface has kept this 10-inch double leather belt highly efficient in night and day service for over 15 years

Mr. T. F. Horan, Chief Engineer of Ludlow (Vt.) Electric Lt. & Pr. Plant, speaks as follows:

"Save for the 8 hours we shut down every Sunday, my 10-in. and 12-in. double-ply leather belts have run day and night since April 1st, 1901. They are in the best of condition today. Nothing has ever been used on any of my belts but Cling-Surface. No sign of wear whatever and they sag beautifully. The more load the belts pull, the more they sag, but they never slip."

If your belts are tight, slipping, cracking, running off or wearing out—TELL US. One trial of CLING-SURFACE will immediately make you a Cling-Surface enthusiast. If not, you can have your money back. Send trial order TODAY or at least ask for literature.

Cling-Surface
the life preserver for belts

Cling-Surface Co
1029 Niagara Street
BUFFALO N Y

New York Atlanta Chicago
Boston Memphis St Louis
Denver Toronto Etc
London Thomas and Bishop
119-125 Finsbury Pavement

77

H. H. Camp reports. There is still a shortage of cars for the shipment of orders, but this condition has improved over the previous month.

Rough-textured face-brick is the material chosen by the Dayton and Troy Traction Company for use in the construction of a station at Piqua, Ohio. The structure will be a small one, about ten by eighteen feet, with an overhanging roof of clay tile, and protected seats for the convenience of people waiting for cars.

A contract for about 400,000 brick to be used in the construction of a new high school building was recently awarded tc the Brick Sales Company of Cincinnati, Ohio, by the Covington (Ohio) board of education. Arthur W. Riggs is president of the Brick Sales Company and Donnelly Weaver is its vice-president.

The Conard-Hallwood Brick and Tile Company of Columbus, Ohio, is now operating its large plant located near Seventeenth avenue and the Big Four tracks. A modern continuous kiln has been completed and is in operation. The company is making both brick and hollow-tile. John Conard is general manager of the company.

Thomas Moulding Company of Chicago will soon open an office in Columbus, Ohio, under the name of the Thomas Moulding Company, to handle brick and clay products. It will be the selling agency for the product of the Straightsville Impervious Brick Company, New Straightsville, Ohio. The location of the office has not as yet been announced.

The next meeting of the Ohio Paving Brick Manufacturers' Association will be held at the Columbus headquarters, Hartman building, November 10th, for the purpose of mapping out a program for 1917. The association is working to organize the state of Michigan, which was taken over some time ago. The organization, however, is giving its attention only to the southern part.

The Ironclay Brick Company of Columbus, Ohio, which has a face-brick plant at Shawnee, is operating with as large a force of laborers as can be secured. Coal mines in the mining districts of the state have attracted labor away from the brick plants. Car shortage is delaying shipments and considerable trouble from that cause has resulted.

Emmett Howard, salesmanager for the Claycraft Brick Company, Columbus, Ohio, reports a fine business for October. Shipments during the month totaled more than 3,000,000 brick. The car shortage is by far the worst feature of the business and seems to be getting worse instead of better. Mr. Howard looks for a fair demand during the remainder of the year.

"Tilebak" is the name of a new backing-up tile just introduced to the trade by the Barkwill-Farr Company, Cleveland, Ohio. The name of the product will be stamped on every piece. Co-operation with architects is being sought by Salesmanager Robert C. Mitchell, with a view toward having them specify that "all walls shall be backed up with B-F 'Tilebak' No. 2, 4 or 8 as the case may be."

A house warming marked the opening of the Builders' Exchange in the Rose building, Cleveland, Ohio, on October 25th. Several hundred members of the Exchange and their wives attended. This is declared to be the finest club room of its kind in the country. The furnishings cost $18,000. Entrance is thru a marble lobby, with rooms on one side for service quarters and on the other for the display of architectural sketches. Exhibits of all kinds of materials are shown in the different rooms.

The enterprise of the Crouse Clay Products Company, Akron, Ohio, has resulted in a rather unusual ordinance being placed before the city council, providing for the vacation of 430 feet of the length of South street for a width of forty feet, or rather for the diversion of the street to that extent. The company desires to gain access to clay banks which lie under the street, and has offered at the end of five years to deed to the city an additional thirty feet, making the street at that time sixty feet wide, instead of thirty, as it now is.

A new building project in the Buckeye capital is the interurban terminus and exposition building which will occupy an entire square from Wall street on the east, Rich street on the south, Front street on the west and Town street on the north. The plans for the structure have been prepared by Architect Frank L. Packard and the financial arrangements have about been completed. The project is backed by the Scioto Valley Traction interests. It is planned to make the first floor an interurban terminus and the second floor a large convention hall. Brick construction will be specified.

Reorganization plans concerning the plant of the Shawnee Flash Brick Company, located at Shawnee, Ohio, are progressing satisfactorily, according to interested bondholders. Within a few weeks a new company will be incorporated and organized to take over the plant, which has been idle for more than a year. It was bought in at receiver's sale several months ago by a committee of the bondholders, consisting of Daniel Mauger, John E. Koontz, Jacob Enlows and L. B. Tussing. It is planned to manufacture both rough and smooth face-brick and, possibly, paving-brick.

An interesting point of law developed in the municipal court of Cleveland (Ohio) recently in an action brought by Councilman William Rolf, a dealer in builders' supplies, against Figler and Rovner, contractors. The latter had sublet a contract to C. J. Dailey. Testimony showed that when Rolf refused Dailey credit, the latter said, over the telephone, that Figler and Rovner would be responsible. One of Rolf's employes testified that in a telephone conversation Figler and Rovner agreed to be responsible. The telephone conversation was upheld by Judge Baer.

H. S. Gaines, assistant to the president of the Ohio Builders' Supply Association, is working on the organization of local associations in thirty districts of the state. In all, twenty-six out of the thirty divisions have been organized, with memberships varying from thirty to fifty each. Others will be brought in line as soon as possible. Each district has a chairman and secretary, who report to the Columbus headquarters. The organization has for its purpose the installation of better accounting systems among the members which include lumber, brick and all building material dealers.

Charles Harrison of the Gaddis-Harrison Company, brick and clay products dealers of Columbus, Ohio, in speaking of conditions recently, said, "We find business holding up exceedingly well in all lines. That includes face-brick, common-brick, hollow-brick and tile. The worst feature at this time is the car shortage which is giving us considerable trouble, but I believe it is getting no worse than it was a few weeks ago. Considerable new construction work is being contemplated in Columbus and central Ohio, and prospects for the future are unusually bright."

Tycos
FERY RADIATION
PYROMETERS
Eliminate Guesswork from the Manufacture of All Products requiring extremely high Temperatures * * * *

We Manufacture - Thermometers and Instruments covering every Temperature requirement in Metallurgy and Chemistry

A Catalog Cheerfully Sent Upon Application

The Taylor-Cambridge Division
Taylor Instrument Companies
Rochester, N.Y.

HETTRICK Red Stitched Canvas Belting

Has been "elected" by the unanimous voice of clay plant managers who have found by experience that it pays to keep an "old faithful" on the job. Why don't you join the contented majority who have proven that Hettrick Belting is always dependable.

THE HETTRICK MFG. CO.
TOLEDO, OHIO

The
Beighlee
"A Pyrometer
with
a Conscience"
Because—

in a half dozen different ways, it is built practically error proof.

You undoubtedly are acquainted by discussion or by actual use—with the usual accumulative errors in clay plant pyrometry arising from the use of base metal couples, low resistance instruments, cold junction errors, small dials, etc.

In the Beighlee these errors are impossible.

The Beighlee Pyrometer
—it is furnished with rare metal couples.
—it has an internal resistance of 1,200 ohms.
—it has a compensating device—eliminating absolutely the cold junction error.
—it has a recording dial that is 18" in diameter.

You had better get in touch with BEIGHLEE—NOW.

Beighlee Electric Company CLEVELAND, OHIO
Herman A. Holz, Hudson Terminal Bldg. New York City
Representative in New England States

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you can do this with perfect safety by using

R. H. Precipitated
Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the dependable brand.

Write for circular and prices.

The Roessler & Hasslacher
Chemical Company
100 William St. New York

Chicago, Ill. St. Louis, Mo. Philadelphia, Pa.
East Liverpool, O. Kansas City, Mo. Boston, Mass.
Cleveland, O. New Orleans, La.

We carry a complete line of high grade chemicals for the clay industry

Cleveland's manner of managing street work was criticized by Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, at a recent meeting of the Cleveland Engineering Society. Mr. Blair pointed out that, because all supervision devolves upon one man, he is forced to sit most of the time at his desk directing, instead of being out on the job where he can see what is being done with the more than $1,500,000 being spent for street improvements. Nearly all American cities have this same lack of business system about this particular work, Mr. Blair said.

When it comes to spacious offices, few have anything on the new rooms of the Barkwill-Farr Company in the Leader-News building, Cleveland, Ohio. In fact, there is so much room that Salesmanager Robert C. Mitchell is considering bids on auto-peds. Orders placed with this firm since its reorganization are from the Abbott-Detroit Motor Car Company, Detroit; Standard Oil Company, Cleveland; American Ship Building Company, Edgewater Park; totaling 1,000,000 common-brick. The Winton Hotel, Chandler motor car plant and East Clark school will require 3,000,000 brick from the Barkwill-Farr plants. Mr. Mitchell predicts a bigger demand for brick during the coming winter than the previous busiest spring.

It is reported from the Ohio state brick plant at Junction City that inability to get coal has compelled the board to close the plant temporarily. The coal shortage came at a time when there were more than eighty men engaged in making paving-brick at the plant, the largest number ever employed. It is said that the board of administration, which has charge of the plant and of the convicts working there, has been very successful in selling its brick, marked "prison-made," to municipalities over the state, as the prices are attractive. The brick were formerly sold thru the State Highway Commissioner's department, under an arrangement by which they were used on state roads only, but it seems that they are making their way into direct competition with brick from other plants.

The Builders' Material Company, a comparatively new concern in the brick and supply trade, located in the Johnston building, Cincinnati, Ohio, has been doing a satisfactory business, according to A. Stamm, its president. W. H. Geiss, who has been connected with the concern since its organization several months ago, and well known as a brick man in Cincinnati, will probably become vice-president and general manager of the New Lexington Brick Company, operating a brick plant at New Lexington, Ohio, with a capacity of 28,000 face-brick a day. If he does, he will be unable to devote much, if any, time to the affairs of the local concern and, since he is the practical brick man of the company, Mr. Stamm stated that his loss would be a considerable handicap.

H. F. White, salesmanager of the Hocking Valley Products Company's brick department, Columbus, Ohio, while speaking of trade conditions recently, said, "We have had the biggest business during October of any previous month that late in the fall. Orders are coming in well and the only bad feature is the lack of cars which is holding up shipments to a large extent. The car situation is getting worse with us. We are also having some trouble with a shortage of labor, which is curtailing production. Demand continues good in every way. We recently closed two large contracts. One calls for 200,000 brick to be used in erecting a hospital at Jackson, Mich., and the other for 240,000 brick to be used in an apartment building in Cincinnati to be erected by M. Y. Cooper."

John Peters, general manager of the Petersburg Fire Brick and Tile Company, announced recently that his company will soon begin the erection of two large brick kilns at its plant in Coal Grove, Ohio, and that other extensive improvements to enlarge the capacity of that factory will be made as soon as possible. Mr. Peters stated that he has just closed a contract for 700,000 brick to be sent to Chicago and that his orders now booked run into 1918. A large amount of brickmaking machinery will be placed in the plant, it is stated, and the capacity will be doubled or tripled to take care of the greatly increased business.

Oklahoma

In commenting upon a statement recently made in these columns, that Muskogee, Okla., was about to get four cent gas, and the clay products manufacturers of that point would probably adopt gas as fuel, in view of the low cost, the Muskogee Vitrified Brick Company writes that it has always used gas for fuel, but will be benefited by the reduction in price. This company manufactures both face and common-brick and enjoys an unusually large business in the south.

Oregon

The Oregon Clay Workers' Association held its semi-annual meeting at McMinnville and Yamhill, on October 20th. Phil Withycomb, the vice-president, gave a talk on tilemaking.

The Bend (Ore.) Brick and Lumber Company after planning to close its brick plant during the winter, has abandoned that plan and has put on additional men to pile up a reserve stock, if possible. This decision is due to the heavy orders being received by the company and the inquiries for brick to be used in buildings that are to be erected during the fall and winter.

Pennsylvania

Plans are being laid for the construction of a two-story fire-brick plant at Philadelphia, Pa., by L. B. Botfield. It is estimated that the cost of the factory will be about $10,000.

The William Florey Brick Company will have a plant in operation shortly after the New Year at Lansdale, Pa., and will manufacture 70,000 brick a day. About fifty men will be employed.

Work is now in progress at the offices and show rooms of S. B. Dobbs, 304 Bailey building, Philadelphia, on the installation of a miniature clay products exposition. The firm has taken additional office and show room space.

The Builders' Co-operative Brick and Tile Company is the name of a new organization capitalized at $15,000 at Nazareth, Pa. Harry J. Overstock of Easton, Pa., is the treasurer of the newly incorporated concern.

Preparations have recently been completed and the contract let by the Fero Brick Company for the construction of two additional kilns at its Watsontown (Pa.) plant. Business with the company is said to be such as to have necessitated these additions.

The Clay Products Manufacturing Company has been incorporated at Philadelphia, Pa., with a capital stock of $100,000 by F. D. Buck, M. L. Horty and K. E. Longfield, the latter of Wilmington, Del. The company will manufacture and sell brick and other materials.

The Gilmore Fire Clay Company has been incorporated at Pittsburgh, Pa., with a capital stock of $50,000, for the

Why Waste Your Money ?

How do you *know* your watchman or burner is steadily making his rounds? You *believe* he is, but do you actually know the money you pay him is providing the safety you intended it shall? How valuable would be a nightly record of his work. When $40 will give such records as these will more than double the efficiency of your watchmen, can you still be content to *guess?*

Let us tell you how this watch-the-watchman system works; never failing and unquestionable. To know this costs you nothing.

HARDINGE BROS., Inc.
1760 Berteau Ave. Chicago

Manufacturers Portable Watchmen's Clocks. Energetic Representatives Wanted for Unoccupied Territory.

Gold Medal Award

Panama-Pacific Exposition

for

THWING

HIGH RESISTANCE MULTIPLE RECORD

PYROMETERS

Their Merits are Vouched for by Hundreds of Satisfied Users

Ask for our New General Catalog No. 8

THWING INSTRUMENT CO.
3336 Lancaster Ave. - Philadelphia, Pa.

LET
US
SEND
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TREATISE.

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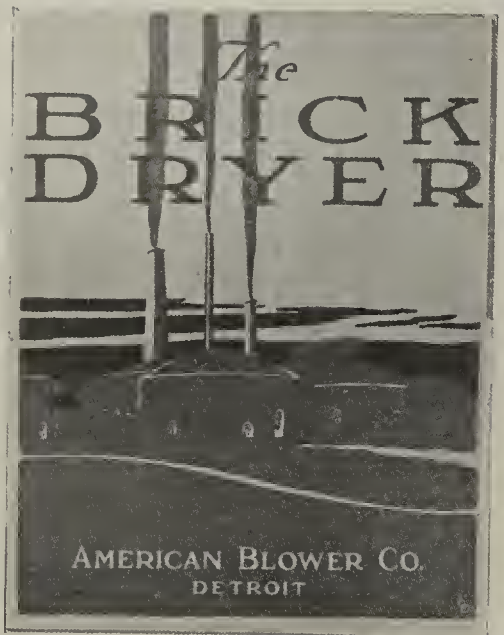


AMERICAN
BLOWER
COMPANY
DETROIT MICHIGAN
BRANCHES EVERYWHERE

The
House
of
Taylor

IN THE HEART OF THINGS

600
Rooms
400
Baths

Hotel Martinique

Broadway, 32d St., New York

125 pleasant rooms, with private bath, facing large, open court

$2.50 Per Day

157 excellent rooms, with private bath, facing street, southern exposure

$3.00 Per Day

Also attractive rooms from $1.50.

The restaurant prices are most moderate. Equally convenient for amusements, shopping or business. One block from Penna. Station.

purpose of mining clay and other materials. The incorporators of the new company are A. L. Gill, Germania Savings Bank building, C. A. Bursner and D. E. Mitchell.

An injunction was recently granted restraining George K. Oberholtzer of Phoenixville, Chester county, Pa., from using tile in the construction of four houses on the ground that the deeds provide that houses in that section of the city must be built of brick.

Incorporated with a capital stock of $8,000, the Meteor Brick Company of Johnstown, Pa., is preparing to build a plant at that point. The incorporators of the new company are C. J. Burkhard, M. Berney, H. Silverstein, T. J. Caliet, V. Wissel, John Burkhard and W. J. Willis, all of Johnstown.

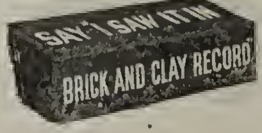
A large clay plant is soon to be built at Philipsburg, Pa., by the Philipsburg Clay Product Company, if the present plans of that concern materialize. The company will at the start manufacture only a face-brick but intends to vary its production after the plant has been running for a time. The fact that the yearly payroll will amount to $80,000 gives some idea as to the size of the project.

Word has reached the Philadelphia trade to the effect that Fisk and Company, Inc., of Boston, Mass., which company recently leased the plant of the Keystone Brick Company at Watsontown, Pa., is ready to invest $25,000 in improvements at the leased works. The proposed improvements will about double the capacity of the Watsontown works, at which it is said Fisk and Company will in the future manufacture building brick instead of pavers, which was the original product of the plant.

Announcement is made by the Watsontown (Pa.) Brick Company that its shale brick plant will be operated to full capacity all winter. A blast of two tons of dynamite will soon be set off at the pit to provide sufficient raw material to last the plant thru the winter months. The firm has numerous orders for paving-brick for use in various towns and boroughs in that locality, and has recently been awarded a contract for 375,000 brick for a Chicago pumping station.

R. T. Hutchins, secretary and salesmanager of the Mack Manufacturing Company, with headquarters in Philadelphia, announces that the work of increasing the capacity of the company's Cumberland (W. Va.) plant has been completed and that all of the plants are now being operated with an increased output of twenty-five per cent of their original capacities. Mr. Hutchins considers prospects for the future as being very bright but complains, as do other members of the trade, of a difficulty in obtaining competent help.

Business with the brick manufacturing firm of William Conway, Philadelphia, Pa., is reported as being still on the increase. Arrangements have been made whereby the Conway plant will be operated to capacity again this winter, as it was last year. The company now has all the building brick business on its books that its factory can handle for several months and, within recent weeks, has been compelled to "turn down" quite a number of inquiries and orders for additional quantities. William Conway, head of the firm, has sufficiently recovered from a recent attack of illness to permit his spending a few hours at his desk daily. His condition is said to be steadily improving and it is believed that he will soon resume his former business routine.



The paving of a number of streets with brick in Reading, Pa., has been delayed, owing to the fact that the Prudden-Winslow Company of New York, who have the contract to furnish the brick, is unable to get sufficient cars to ship the pavers to that city within the specified time. The company informed the Reading authorities that it has in stock at its three plants 2,000,000 brick and could load all the material required for the paving in that city in two days if it could get the cars. During this concern's twenty-five years' experience it claims that it has never been confronted with such a serious car situation as exists this fall. "Ordinarily, at this season of the year, we used to ship from twenty to thirty cars a day, while now our overage car supply at the three factories is not two cars per day," according to an official of the Prudden-Winslow Company.

Rhode Island

Conditions are unusually good at the plant of the Ashaway (R. I.) Clay Company. Heavy orders and large shipments have kept the plant running to capacity thruout the year. A new clay pit has been opened and the clay, according to the officials of the company, is of a very high grade.

Texas

The city commission of Fort Worth has awarded the contract for paving Handley boulevard from East Front street to Sycamore street with brick on a bid of $13,542.50. The city is to supply the brick.

Many clay products manufacturing plants in northwestern Texas have been notified by gas companies that have been supplying fuel for their kilns, that they will be unable to continue this service. As a result, the plants have had to install other systems of burning.

Altho the Star Clay Products Company, operating a plant at Elmendorf, a few miles out of San Antonio, Tex., has a daily capacity of one hundred tons of hollow-ware and is recognized as one of the largest and best equipped plants in the south, it is now building a semi-continuous kiln which will add fifty tons a day to the capacity of its plant. The new kiln is one hundred and sixty feet long.

The Cobb Brick Company of Fort Worth, Tex., is enjoying a tremendous demand for its product, the plant operating to capacity in attempting to fill the demand. City orders are better than usual, indicating building prosperity for Fort Worth. An order for several thousand brick to be used in a large automobile plant to be built at that point was among the big orders received recently.

At a recent meeting of several manufacturers of hollow building tile and other clay products held at Dallas it was decided that they would co-operate with the Texas Railroad Commission in urging the Interstate Commerce Commission to suspend the proposed rates which have been promulgated for the railroads of Texas, to have become effective on November 1st. Those who attended the meeting were J. H. Payne of Dallas; J. R. Martin of San Antonio; C. W. Martin, R. F. Williams and P. E. Miller of Athens.

Washington

The Denny-Renton Clay and Coal Company, Seattle, Wash., has completed seven of the ten miles of "monolithic" brick paving on the Des Moines road in King county. This paving is giving great satisfaction, and it may be further extended.

KOPPEL

Clay and Dryer Cars

Standard and Special Cars of all types and sizes. Portable Track, Rails, Frogs, Switches, Steel Ties, shipped from stock.

THE ELECTROMOBILE TRADE MARK INDUSTRIAL TRUCK

Needs no special runway.
Climbs a 30% grade loaded.
Displaces from 3 to 8 men.

Electromobile Trucks, Tractors and Trailers have paid for themselves in six weeks.

Write for Electromobile and Industrial Railway Catalogs.

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Branches all over the world.
The "Electromobile"—Electrically Driven Industrial Truck.

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Boiler Grates

Sold on 90 Days' Trial

These are the six points of superiority:

1. Even distribution of draft.
2. No fuel gets into the ash pit.
3. Locks level.
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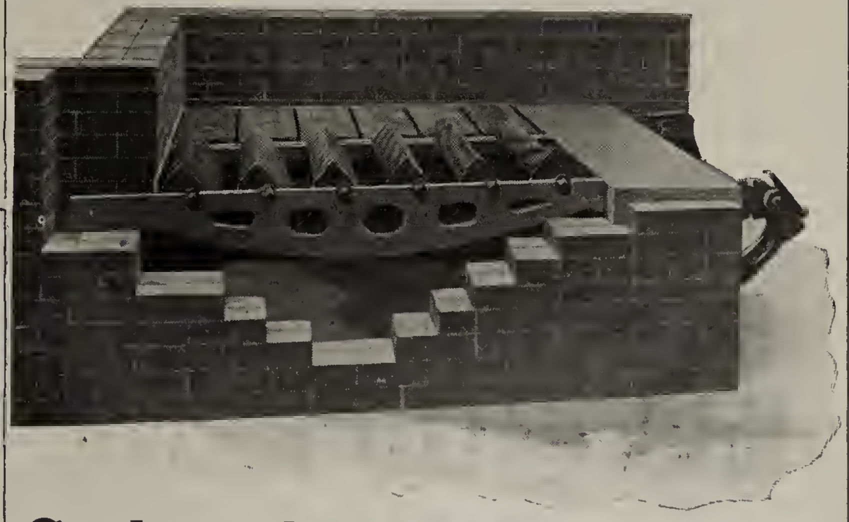
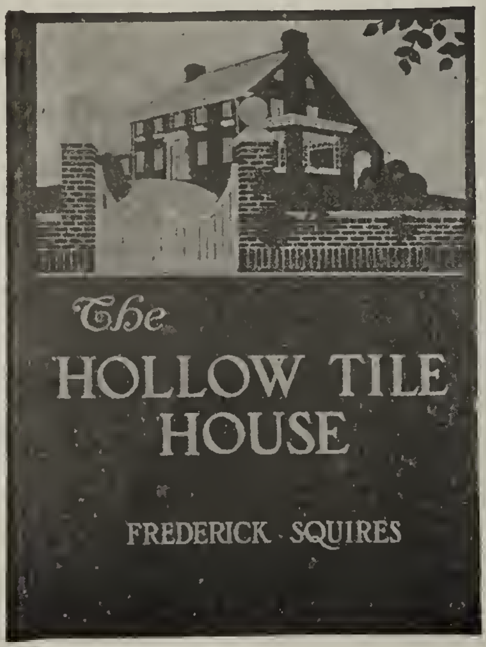
Ask us to PROVE it.



Cyclone Grate Bar Company
BUFFALO, N. Y.

SAY I SAW IT IN BRICK AND CLAY RECORD

If you make, sell or use Burned Clay Fireproofing



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THE HOLLOW TILE HOUSE

by Frederick Squires

is brim full of valuable information and good reading matter on this new field of hollow tile in residential construction, its history, how the tile is laid up, cost data and a host of other interesting subjects, all of which is skilfully woven by the author into a very fascinating story. A large number of illustrations give the reader an idea of the architectural beauties and possibilities of the hollow tile house. It will be time well invested to read this book.

ORDER A COPY NOW.

PRICE $2.50

Book Department

Brick and Clay Record

CHICAGO

A two hundred and twenty-five-foot stack built recently for the Spokane (Wash.) Heat, Light and Power Company, required 166,770 brick of fourteen different kinds for its construction. This stack has just been completed and another of the same kind is being built.

Contracts for improvements requiring 1,000,000 brick and 50,000 hollow-tile have been awarded the Northwest Brick and Tile Construction Company of Tacoma, Wash., by the Tacoma Smelting Company. The work includes the construction of one of the largest flues in the West, which will lead from the smelting company's refinery to their stack.

The Uniontown (Wash.) Brick and Tile Company has been having a busy season. The plant has been operating steadily and the demand for its high-class output is on the increase. Two expert tile and brick makers have been steadily employed during the season to superintend the work. Thirty-five thousand three-inch tile and 160,000 brick are at present being burned in a kiln and there is a good surplus stock of ware on hand for immediate delivery.

After a long period of experimentation with fire-brick and fire-clay products, the Far West Clay Company of Seattle, Wash., has finally placed upon the market the "Far West" fire-brick, a product that it has just begun to manufacture. The company was first convinced of the refractory properties of its clay when severe fires failed to have much effect upon the building tile made at this plant. Before placing the new product on the market, the company spent a large sum of money developing it, employing experts, installing machinery and using the product in its own kilns and power plant. The results of the research and experimentation were favorable enough to warrant the production of that commodity upon a large basis. In connection with the fire-brick, the company is also marketing double-milled fire-clay—the same material from which the brick are made. This is sold to be made into mortar, giving very satisfactory results when used with the company's brick. H. S. Wheeler, vice-president, is well pleased with the encouraging reception given the company's fire-brick and looks forward to a large business along this line.

West Virginia

The Municipal Shale Brick and Block Company at Martinsburg, W. Va., is to erect an additional plant.

The Suburban Brick Company of Moundsville, W. Va., recently installed four large motors and is now operating its entire plant with electricity.

To manufacture fire-clay blocks for glass tanks and furnaces, the Willetts Clay Company will build an addition to its plant at Fairmont, W. Va.

Wisconsin

The new plant of the Whitewater (Wis.) Brick and Tile Company is rapidly nearing completion and the work of manufacturing is expected to commence very shortly. Both the boiler room and power plant are finished and the drier has been erected. Two kilns are in condition to be put thru their first burn and present plans point to the construction of two more this fall.

Do You Know the Answer
to this question: "Is the Winter-building Dull Season Real or a Dream?" No?
Then Read the November 21st Issue

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

A wage increase amounting to about seven and one-half per cent. thruout all departments, has been granted to members of the National Brotherhood of Operative Potters by the United States Potters' Association, effective the first full pay after November 15th, and under certain conditions.

The proposed increase was first brought to the attention of the operators last May by the executive board of the brotherhood as a result of the constantly increasing cost of living. However, the members of the United States Potters' Association refused even to consider the increase until about two months ago, when the saggermakers walked out on a strike. It was then they definitely decided to grant a general increase to practically every employe, altho no announcement of their intention was made at that time.

The raise will last until the expiration of the present wage agreement, while "present conditions shall continue in the pottery industry." The advances are understood "to be a premium for steady work and faithful observance of the agreement."

The advance to jiggermen and dishmakers is conditioned upon the workmen with the assistance of their boys, carrying their own clay in case the clay carriers fail to report for duty.

The advance to kilnmen is conditioned upon there being no opposition to the placing of the extra apprentice when the necessity arises as specified by the wage scale. When a kiln crew cannot be filled with a full complement of steady, competent and regular men within one week after application to the secretary of the Brotherhood, it shall be considered prima facie evidence of a scarcity and the firm may then add an extra apprentice to that crew without further formality, and without opposition on the part of the kilnmen.

The revised scale follows:

Kilnmen

First week paid out of the office.

First three months $1.75 per day actual straight time.

Second three months $1.50 per day counted on kilnmen's time.

Second six months $1.60 per day, counted on kilnmen's time.

Second year $1.70 per day, counted on kilnmen's time.

Third year $1.80 per day, counted on kilnmen's time.

All subject to the advance of ten per cent.

The difference between the wages of the second apprentice and regular journeymen wages for the first two years shall be divided among the other members of the crew.

On plants where the "green" saggers were delivered at the expense of the firm prior to June 1st, 1916, they shall continue to deliver them to the kilnmen.

On plants where the kilnmen have been accustomed to carrying the "green" saggers, it shall be optional with the manufacturer to deliver the saggers by oddmen, but on the smaller plants, where it is impossible to arrange for common labor to do the work, it is agreed that the firm

GANDY and Dust

"We have been using the Gandy Belt in connection with our plant for some time, and it has given us very good results. We believe it is less affected by the dust of a cement mill than any other class of belts."

Dust is one of the worst enemies that a good belt encounters in its daily duties.

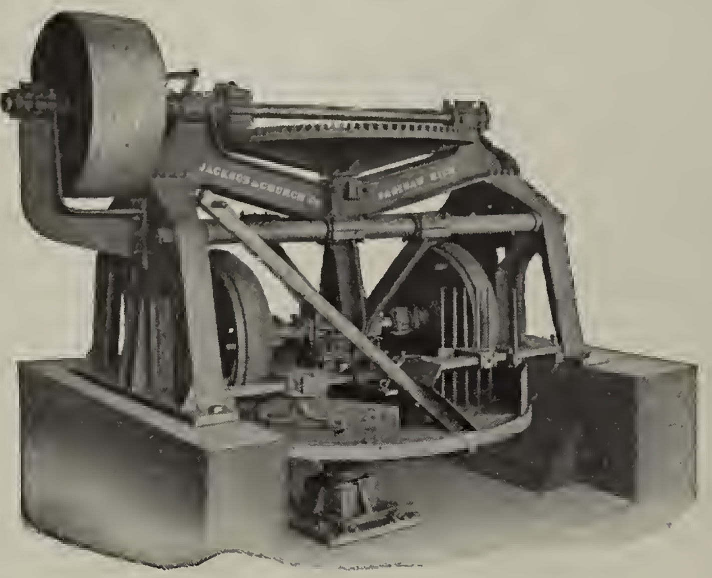
When it gets between the pulley and belt, it becomes grit, and with the continual pull and traction takes its toll by shortening the life and service of the belt.

GANDY BELTS, however, are an exception. True, dust affects them, but in comparison with other types, the effect upon a Gandy is a minor consideration. As proof of this note that the cement industry is one of the biggest fields for Gandy Belts.

Of course, all belt users do not encounter the dust problem, but a belt that will stand up under such unusually severe service will surely make good in ordinary use.

Let us tell you just how Gandy Belts will save you money in your plant. Full information upon request.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

shall pay the kilnmen for delivering the "green" saggers.

To arrive at a piece work price a period of two weeks shall be taken, during which count shall be kept of the "green" saggers carried by the kilnmen, their time being figured at the rate of fifty cents per hour.

From the amount paid the kilnmen for the work and the number of "green" saggers carried, a piece-work price per sagger shall be arrived at and this piece-work price shall govern the work after that time.

Pressing, ten per cent.
Packing, day work, $3.50 per day net.
Packing, piece-work, ten per cent.
Sticking-up and finishing, ten per cent.
Casting, five per cent.
Dipping, five per cent.

The advance to dippers is conditioned upon there being no demand for more female assistants than were provided at the beginning of the present wage agreement, October 1st, 1915.

Handling, five per cent.
Kilndrawing, five per cent.
Mouldmaking, five per cent.
Saggermaking, five per cent.
Turning, five per cent.
Glost dressers, five per cent.
Bisque brushers, five per cent.

This advance to glost dressers and bisque brushers is understood to be based upon the East Liverpool scale of $1.35 for dressers and $1.40 for brushers per day of nine hours.

Women kilndrawers, five per cent.
Dippers' helpers, five per cent.
Warehousemen, five per cent.
Decorating kilnmen, five per cent.

Conditions

First—This advance shall not be obligatory except to regular employes, whose names appear on the pay roll.

Second—No employe who absents himself without reasonable excuse when his work is needed shall receive the increase for the pay during which the second or subsequent offense occurs during any period of three successive months.

Third—The increase will not be paid to any workman who quits without working out his notice, or in any way violates the discharge agreement.

Fourth—The increase will not be paid to any workman who refuses to work under the conditions of the wage agreement.

Fifth—No advance shall be paid any workman who is governed by action, order or law of his local in violation of paragraph six of the Astor agreement.

The action of the members of the United States Potters' Association in agreeing to advance the wages of all workers will, without question, increase the production and cause every plant in the United States to reach a greater output than at any time during the past year. The scarcity of ware all year has been most marked. Buyers have been unable to receive anything near their requirements, and orders booked as late as last March, in a number of instances, remain unfilled.

While a number of branches in the trade will receive an increase of ten per cent. and others five per cent., the horizontal increase will amount to about seven and one-half per cent.

This action has been taken by the manufacturers in face of the fact that they have a working agreement with the

National Brotherhood of Operative Potters which does not expire until October, 1917. It has been pointed out that time after time the workers have violated this agreement and, in one or two particular instances, certain branches of the trade have repudiated it and have gone on strike. Such was the case of the saggermakers, who cast the agreement to the four winds and left their benches, remaining out over a month.

In view of the advance in wages, the contemplated advance on January 1st in the price of fuel gas and coal, increased costs of raw materials and freight rates, the manufacturers have announced that hereafter an extra twenty per cent. will be added to the base of all invoices. During the past season two increases of five per cent. have been authorized to the base of invoices, but the buyers have not been altogether satisfied. The buyers have pointed out that the manufacturers should have added twenty per cent. to their invoices long ago, and, had they done this, production would have been at least fifty per cent. greater than it has been thruout the season. The increase in wages and the new selling lists have become operative, and buyers announce themselves as being satisfied. The manufacturers contend that since the wage increase was authorized there has been a noticeable increase in output.

IMPORTANT NEWS FROM MANY PLANTS

The Brunt Tile and Porcelain Company, located at Chaseland, near Columbus, Ohio, is at present a busy spot. Within the next few weeks the factory will be on the high tension service of the Columbus Railway, Power and Light Company. During the time the plant has been in operation the Brunt Tile and Porcelain Company has maintained its own power plant, using direct current, but in the future alternating current will be used. The motors in use at present will be discarded. In their place an entire new set of the best motors that can be secured will be installed. In considering the business outlook, Mr. Brunt states that the plant now has more than one hundred employes, but that additional help can be used. Girls, especially, are in demand, and can be furnished steady employment. He also comments on the fact that it was somewhat difficult to get materials for manufacturing his product owing to a car shortage but that, luckily, the company has stocked up on raw materials anticipating a railroad strike.

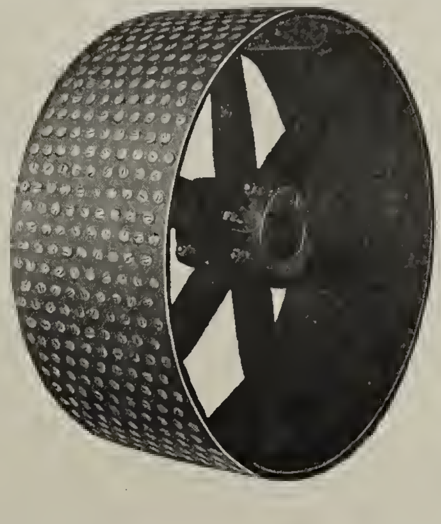
The Manufacturers' Light and Heat Company, controlling the fuel gas system in the vicinity of East Liverpool, Ohio, and the West Virginia cities across the river, has notified pottery manufacturers in all of that district of an advance in the gas rate of one cent per 1,000 feet, effective about December 1st. The decreasing supply is understood to be the reason for the move which is in line with the recent action of companies in central Ohio in cutting off several of the smaller towns entirely, in order to conserve the gas supply for the larger cities. A protest over similar action by the Ohio Fuel Supply Company is now pending before the Ohio Utilities Commission.

The electric porcelain finishers of Trenton, N. J., recently celebrated the anniversary of the founding of their organization. Following a short business session, Joseph Plumen, international vice-president of the porcelain workers, was introduced as the speaker of the evening. He advised the members of the local organization on how to conduct their union affairs and also talked of the work being done by similar organizations about the country. Among other speakers were Anthony Spair, one

A Fire Brick Maker Commenting On

Cork-Insert Pulleys

SAYS *"the Cork Insert pulley that we installed in 1913 has always given us the very best of satisfaction and since the installation we have not been obliged to touch it. The pulley has the hardest work of any in our plant and has given service beyond our expectations. Should we in the future encounter other troublesome drives, we will without any hesitancy specify Cork Insert pulleys."*
(Signed)
A. Reeder Chambers.
Trenton, N. J.



You Know by Actual Experience That no One in the World Makes a Pulley Work Harder Than a Clay Products Manufacturer.

In the manufacture of clay products there are discouraging conditions for the pulley to overcome—if it be an ordinary pulley.

Cork Insert pulleys overcome both dampness and dust—and with unusually heavy loads, too.

Cork Insert pulleys are made in Cast Iron, Paper, Steel and Wood Rim Iron Center types thus offering the pulley best suited to your particular conditions.

The specialty of Cork Insert pulleys is to overcome difficult conditions and to produce operating economy.

WHAT IS YOUR PULLEY *DIFFICULTY?*

THE SLIP-STOPPING PULLEY

THE CORK INSERT CO.
168 Federal Street
BOSTON - - MASS.

SEND THIS COUPON FOR CATALOG

Please Send Catalog.
Writer's Name..........
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SAY "I SAW IT IN BRICK AND CLAY RECORD"

Is Your Kiln a Waster?

What seems to be the trouble? Do you overburn the top and get soft ware in the bottom, and between the bag-flues? Does the heat—the thing you are burning coal (money) to produce—follow short-cuts to the stack?

The kiln that has these troubles always burns too much coal, takes too long to burn, and wastes money for its owner.

Why don't YOU get out of this class?

The Hook Down Draft Kiln Is a Saver!

It distributes the heat evenly and holds it in the kiln the longest possible time without loss of draft. All of the ware is watersmoked at the same time, bottom ware always above the dewpoint. A Smooth passage from Watersmoking to Highfire.

RESULTS:
A quick, even burn.
Frequently one-half of the fuel formerly required—SAVED.
Lowered Burning Costs.
Increased Kiln Capacity (due to turning more often).
A Happy Clayworker.

In addition, this system is easy and inexpensive to install and pays big interest on the investment.

An estimate of the saving which the "Hook System" can make for you and the cost to install in your kilns, old or new, gladly furnished.

Just give us the number and size of your kilns, kind of ware and present burning time and fuel consumption.

Hook Patent Kiln Co.
Commerce Bldg., Columbus, Ohio
Kiln Band, Grate Bars and all Accessories

of the federation organizers; Warren A. Hannum, president of the Central Labor Union; Harry Meyers and Luke Travas.

Plans are now in the making for the purchase of the former plant of the Chelsea Pottery Company at New Cumberland, W. Va., by East Liverpool interests, but no definite announcement has been made as to when the property will be taken over. With this end in view the West Virginia China Company has been formed with a capital stock of $100,000. C. L. Gray and A. J. Cartwright of East Liverpool are back of the new company.

General ware potteries in the western territory have been operating to about fifty to seventy per cent. of capacity all thru the season. Inability to secure workers is the cause. Potters have left their benches to take positions in steel plants. No newcomers have appeared to take the places of those who have left the trade.

The Wooster Pottery Company of Fredericksburg, Ohio, has filed amended articles of incorporation increasing its capital stock from $50,000 to $70,000.

* * *

NEW MONOLITHIC BRICK ROADS *in* ILLINOIS COUNTY

(Continued from Page 790.)

smooth, even surface with an 800-lb. water-ballast hand roller. The brick are carried in tongs from the piles to the pavement, and stacked in regular order for laying so that the lugs will all be in one direction and the best face up. Inspection is made at this time, and all rough, broken or cracked brick are either turned over or put out of the pavement.

GROUTING

The brick are grouted immediately after the rolling is completed. The grout is made of equal parts of cement and sand, mixed to a uniform consistency in a small grout mixer. The sand is of such size that it will all pass a No. 12 screen and, if necessary, is screened in the yard. It is sacked and placed along the roadway with an equal amount of cement, so that no time is lost in measuring. This also maintains a uniform mix, so that with a constant amount of water, grout of the same consistency is obtained.

The first coat, of a consistency of thin cream, is run on from the mixer thru a spout having a grating on the lower end to catch any lumps that may have escaped the operator's attention. It is broomed into the joints and allowed to set. The second coat is put on within an hour, but is carried back in wheelbarrows instead of running the mixer back over the pavement already grouted. The second coat is also of the consistency of thin cream, and is worked thoroly into the joints with a squeegee. The material along the edges is made somewhat thinner by sprinkling the sides slightly before applying the second coat. This insures a thoro filling along the edges of the pavement. A small amount of grout is left on the pavement at this time to provide for settlement. When it has partially stiffened, the pavement is gone over a second time with the squeegee, filling all joints and cleaning the grout off flush with the surface of the brick. All operations are carried on within 100 ft. of the mixer.

When the grout has hardened sufficiently, the pavement is covered with 2 in. of earth and kept wet for ten days. Traffic is kept off for at least three weeks. The pavement is then cleaned off, the shoulders shaped up and the 3-ft. macadam or gravel shoulders placed and compacted by rolling along the side of the pavement.

ORGANIZATION OF GANG

In the usual organization for the carrying on of this work thirty-two men are required. They are distributed as follows:

Ahead of the mixer are one form setter, five wheelers, three shovelers, and one cement man. At the mixer are the operator and the fireman. Behind the mixer there are two men spreading concrete and one for carrying forward the boards upon which the mixer is run, and for tamping the concrete. In the paving gang there are one brick setter, three stackers, one starter (who helps with the tamping), one batter, five carriers, one culler and one roller. Three men usually suffice to grout the pavement. Finally, one man is needed to keep the pavement wet down and to pull the forms. With this organization and a good mixer 700 or 800 ft. of pavement is a good day's work.

With this type of construction the most important part of the work, so far as obtaining a smooth surface is concerned, is at the mixer and the templates. Intelligent rolling of the brick is a necessity but, if the concrete is not of uniform consistency, almost no amount of work short of taking up the brick and reshaping the concrete will make the pavement smooth. Too great emphasis cannot be placed upon this detail of the work. The proper operation of the mixer to insure a uniform consistency of concrete is imperative.

In closing, it is well to note that prior to the decision of the county to establish a real system of roads, it had eighty miles of so-called gravel and macadam highways, some of which were fairly good, while others were very bad. When the present work now under way has been completed, the county will have, including the city of Danville, a large mileage of brick roads. Without that city and including the new bond roads, Vermilion county will have approximately forty miles of brick highways in 1917. A glance at the map which accompanies this article will show just how much brick will be laid. Of these roads, those that are being laid according to the monolithic type are costing $12,985.72 per mile, which covers a pavement eight inches thick at the side and nine inches in the center, including three foot gravel or stone shoulders.

NEW MONOLITHIC TYPE LOOKS PROMISING

Vermilion county is already becoming the mecca for good roads enthusiasts and those interested in improving the highways of the country. There is hardly a week passes but what some delegation, engineer, good roads writer or county commissioner does not pay P. C. McArdle a visit and ask to be shown over the "Pride of Vermilion County."

In closing it might be said that Mr. McArdle and those who are in sympathy with his method, have developed a type of brick road in Vermilion county that is deserving of considerable thought and attention. It is useless to argue that brick roads have as yet reached a state of perfection. Those who are most closely in touch with the situation know this to be a fact. However, the time is rapidly coming when brick will forge to the front as being the most permanent type of road possible and, if the method of construction that is being followed in Vermillion county is productive of the service which its advocates claim for it, there is little doubt but what the day of perfection is near at hand.

LAKEWOOD LINE
BUILT TO LAST

You can solve a good share of your labor troubles—be more independent of your help—and make a substantial saving in wages if you will adopt the

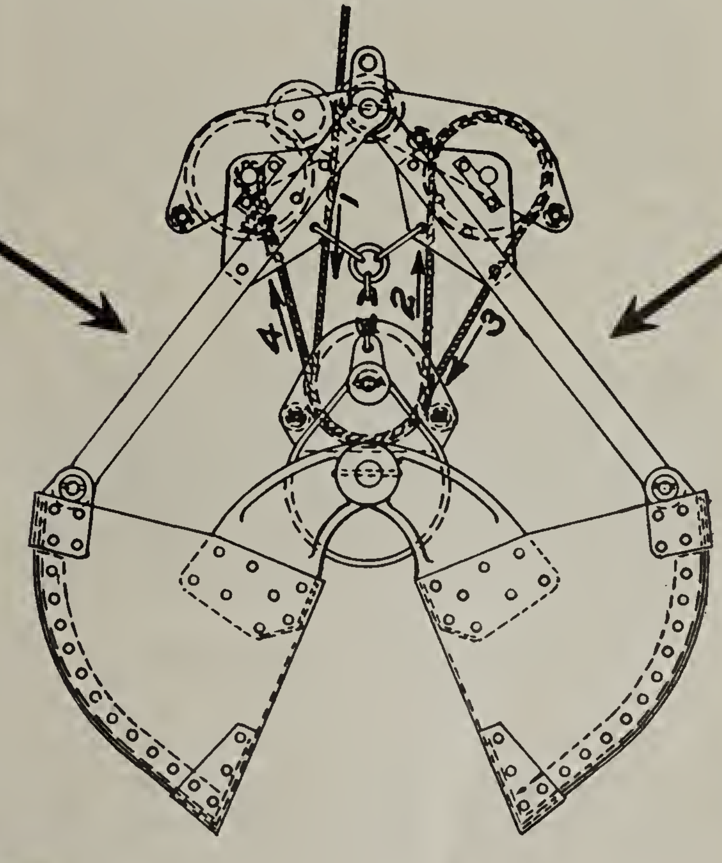
LAKEWOOD
CLAM SHELL
BUCKETS

This is no ordinary bucket, but it is different from any other bucket you ever saw. One of its outstanding features is the arrangement of the sheaves whereby it "digs before it pulls." Hence there is no lost motion—it always comes up full—it takes less power and time than any other bucket requires for the same work.

While you are considering changes to be made in your plant to produce greater economies, don't overlook the Lakewood Clam Shell Bucket—ask us for the names of clay plant users.

LAKEWOOD ENGINEERING COMPANY
CLEVELAND, OHIO

Also, Clay and Dryer Cars, Trackage, Turntables, Steel Pallets etc. Ask for Book 16.



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Electric Motor Drives

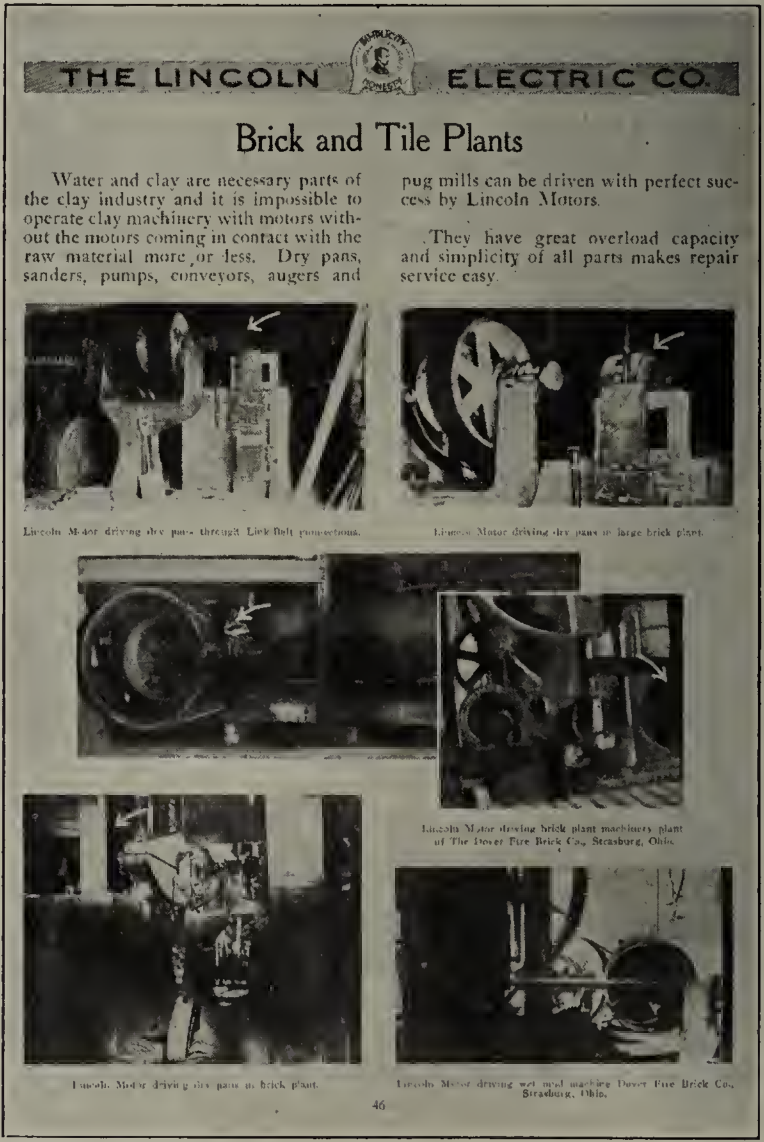
One of the very best arguments in favor of individual motor for each machine is that it makes the entire plant elastic and each machine independent.

If the auger machine is for some reason not running, it is still possible to continue the use of the dry pans and screens and continue grinding without running a 500 h. p. Corliss and two hundred or more feet of line shaft with the attendant waste-power pull of idle belts and pulleys not in clutch.

The value of instantaneous stopping in an emergency is also high. If a gear strips, clothing catches, or casting breaks, it is possible to save or prevent accumulation of damage by pulling a switch.

Individual motor drive can be used on all clay machinery; it presents a chance to use less floor space, making the machinery line more compact; it should, and in the majority of cases it does, produce action in the machine with a less expenditure of power—for friction power loss is reduced to a minimum. It is an efficient adaptation of the principles of "Safety First," as it makes the operations safer; it produces a flexible plant, the various machine units being independent; it saves power and money in a half dozen different ways and is therefore an economical investment.

In the accompanying illustration is shown a series of individually electric motor driven clay machines. The motors


THE LINCOLN ELECTRIC CO.

Brick and Tile Plants

Water and clay are necessary parts of the clay industry and it is impossible to operate clay machinery with motors without the motors coming in contact with the raw material more or less. Dry pans, sanders, pumps, conveyors, augers and pug mills can be driven with perfect success by Lincoln Motors.

They have great overload capacity and simplicity of all parts makes repair service easy.

Lincoln Motor driving dry pans through Link-Belt connections.

Lincoln Motor driving dry pans in large brick plant.

Lincoln Motor driving brick plant machinery plant of The Dover Fire Brick Co., Strasburg, Ohio.

Lincoln Motor driving dry pans in brick plant.

Lincoln Motor driving wet mud machine Dover Fire Brick Co., Strasburg, Ohio.

46

Reproduction of a Page from the New Catalog of the Lincoln Electric Company were all furnished by the Lincoln Electric Company of Cleveland and in this case all are equipped with Link-Belt Silent Chain Drives.

Lincoln motors are distinctive in that they are immune to oil, dust and water, and are particularly successful on clay plant work.

A complete catalog is published, of which the accompanying photograph is a part.

A Regular Brick

A Hardinge Watchman's Clock was recently shoveled into a furnace with a scoop full of coal.

The watchman, after finishing a round, dropped the clock on the coal pile and Mr. Burner shoveled it into the furnace; before it could be recovered the heat had burned off the leather cover, melted the glass face and also melted all the soft metal in the clock so that it flowed like molasses—and yet the clock continued ticking.

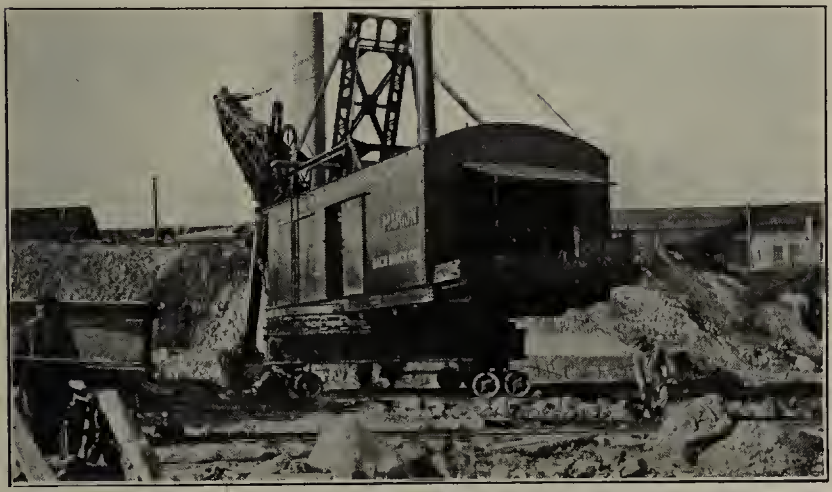
Such persistence and tenacity of purpose has never been noted in any ordinary clock.

Mammoth Marion Shovel

At the plant of the Bach Brick Company in Chicago, there was installed last week a monster new eighty-ton steam shovel. It is of the Marion revolving type No. 212.

The dipper has a two-yard capacity and is appended to a boom that is forty-five feet in length.

With the old shovel it was necessary to use two benches, as the face of the pit approximated thirty-five feet in height, and the old one-yard shovel could not reach far enough, and was also often taxed severely in an effort to keep the plant adequately supplied with clay.



Marion Steam Shovel Just Installed at Bach Brick Company's Plant

The new shovel reaches to the top of the bank, it fills up a two-yard car each swing, it keeps the plant supplied with clay "without half trying," it is operated with the same number of men as the older shovel, with an expenditure of but slightly more in coal.

The Marion Steam Shovel Company, Marion, Ohio, caters to clay products manufacturers.

Preliminary Crushing

The advantages to be derived from crushing shales and fireclays before entry into the dry pans are now well recognized.

The lessened wear and tear on the pans and the increased capacity, resulting from a policy of crushing the large pieces down to double fist size, more than pays for the installation.

The Manufacturers Equipment Company of Dayton, Ohio, has installed two of its single roll Mecco crushers on one of the Burton-Townsend plants, a letter from R. C. Burton, president, follows. It is self-explanatory:

"Your letter of September 18th duly received with inquiries in reference to Single Roll Rock and Shale Crusher. We have had two of these crushers in operation for nearly two years and have not spent one penny for repairs upon them and I have had them in constant operation.

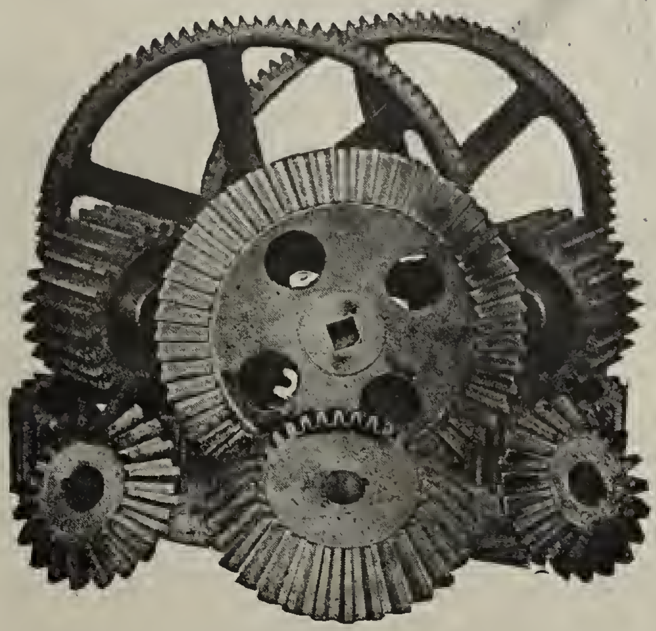
"We have been able to effect quite a saving in expense by the crushers' capacity to take care of pieces of shale two feet

All good brick machines are equipped with

NUTTALL

Cut-Steel

GEARS



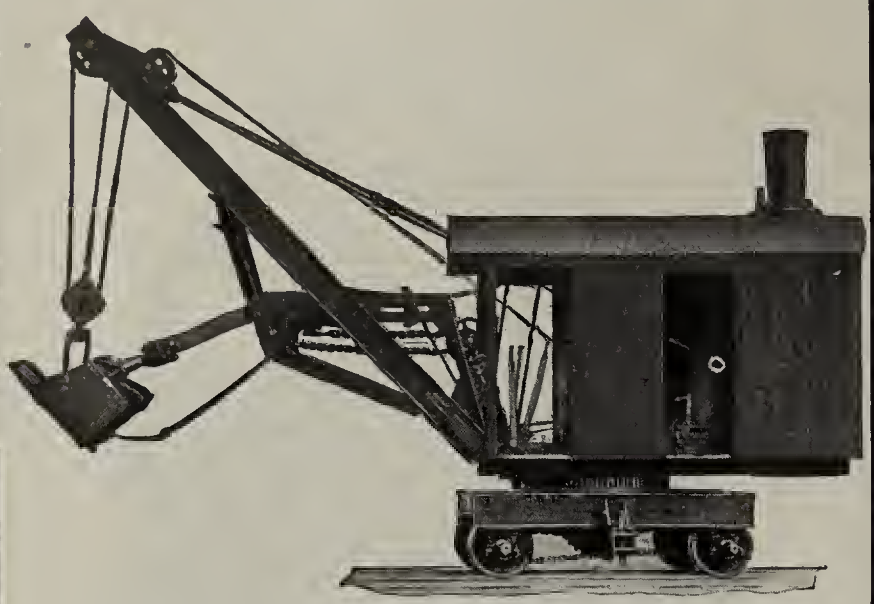
Too many brick machines that are otherwise good do not measure up to expectations because they are made with cast tooth gears. If your machines are in the "otherwise" class go out and keep your eyes on the gears. It won't take you long to realize why you don't get all the capacity you expected, or why your power fuel costs are too high.

Change your present machines to cut steel gears—then insist on cut steel gears on future purchases, and you'll cut down power cost and repairs.

Ask us for Bulletin No. 19.

NUTTALL—PITTSBURGH

A Thew Shovel will last 24 years



The first Thew Shovel did not look as good as this. It was not as good as this shovel. It will not last as long as the new Thews, yet the first Thew Shovel has been in continuous service 24 years.

This is what the owner says about it: "No better shovel was ever put up. It is not very handsome to look at, but is very economical in operation and does its work without any trouble. We can't say anything too good about the shovel."

The real test of any machine is the test of years. Hourly, daily or even monthly outputs are of secondary interest. The important question is what will the machine do year after year? The above statement shows that The Thew is equal to the supreme test.

The definite policy of building the best possible shovel regardless of cost of production and an honest endeavor to render the best possible service to every Thew owner makes it possible for the Thew Automatic Shovel Company to refer to any Thew owner anywhere.

Use a Thew—It pays—Join the Thew Boosters Club. There are over 300 Brick manufacturers who are loyal Thew Boosters. Write for the names of those near you.

Circular 22-C gives actual costs of handling clay.

The Thew Automatic Shovel Co.
Lorain, Ohio

in length by eighteen inches wide and twelve inches thick. In other words, one and two-man pieces of shale heretofore had to be broken up before they could be crushed in our dry pan. Both machines are giving entire satisfaction."

Belt Dressing

In the average clay plant where water, oil and particularly dust are prevalent, it is necessary to use extra efforts in keeping the belts clean, pliable and in good condition.

A dirty belt, or a dry, cracked belt can not transmit power efficiently. Such a belt will slip, and a slipping belt causes, in addition to lost power, a wear and tear on machinery, belts and line shafting that is excessive.

A good quality of belt dressing is necessary and a profitable investment. The Sero Specialty Company of Cleveland, Ohio, have a "Sero" belt dressing that while being used on clay plants has proved that it will adhere to either rubber, cotton or leather belting, that it preserves both rubber and leather, that it does not pull the rubber off the cloth, that belts can be run slack and that the dressing does cleanse the belts and keeps them in a bright, clean, pliable condition.

Speedier Dictation

The dictaform is a new office device designed to facilitate the dictation of letters. In effect it is a series of loose-leaf, vertical, hinged cards, and each card is numbered.

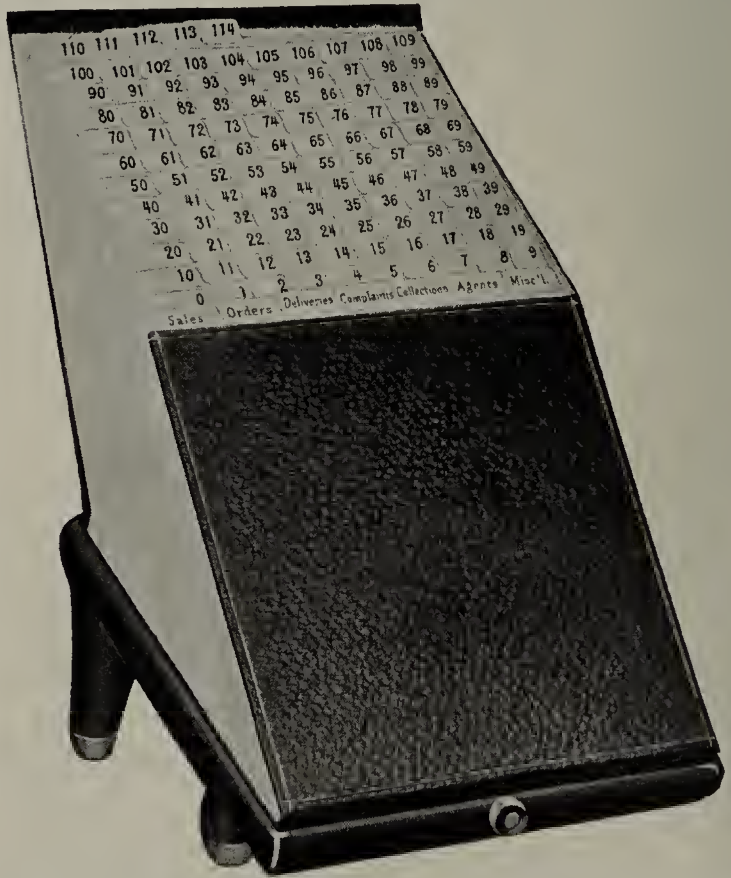
In front are the index cards where the different types of letters and data are tabulated. For instance—under the heading "Sales" are tabulated the different questions that come up in sales correspondence, such as complaints regarding brick shipped being off shade; or carload short of required number as per bill of lading, etc.

The best answer that it is possible for you to make to off-color complaints is pasted on a loose leaf, let us say No. 17. Then on the card indexed "Sales" a heading "Complaints Regarding Off Color" is entered and numbered 17. This procedure is followed for each heading that you may require.

Therefore in answering letters of any type at all it is simply necessary to indicate the card and paragraph as, for example, leaf 17, pgh. a, c and d.

When you have thought out your strongest answer to a question, classify the argument under its proper heading and put it into the Dictaform. Continue this plan for a short time and you will have ready for instant reference your own letters, paragraphs, phrases and arguments sparkling with your own individuality.

These letters written when your mind is clearest will always be powerful and clear, ready for use even at times when you yourself are not up to standard.



What the Dictaform Looks Like. The Accompanying Article Tells How to Use it

If a standard letter will not do, you select paragraphs from the various letters and build up a new letter that will set forth the right arguments.

It will not only save time and money but the Dictaform will really be an encyclopedia of your own business, and it constantly grows better as you add to it and change your ideas.

The Meilicke Calculator Company of 350 N. Clark street, Chicago, Ill., will send you full and complete information.

Thwing Moves

Dr. C. B. Thwing has been compelled to move the office and factory of The Thwing Instrument Company to larger quarters, due to greatly increased business.

The new address on and after November 1, 1916, will be 3339-41 Lancaster avenue, Philadelphia, Pa.

Youngstown Car Catalog

A new loose-leaf catalog has just been issued by the Youngstown Steel Car Company of Youngstown, Ohio.

The catalog pictures and describes the full equipment line of the company including all kinds of dump cars, transfer cars, special cars, turntables, etc.

The New Car Catalog Now Ready for the Trade

The loose-leaf feature makes it possible for the Youngstown company to keep the catalog always up-to-date, and consequently of more value to clayworkers.

Union Steel Chains

These chains, due to the self-contained construction, are positively trouble proof, it being impossible for any part to work loose; and no case of breakage has ever been reported.

These chains were introduced about two years ago, but even in that short time the merit was so great that manufacturing facilities were increased 1,500 per cent. and this increase was due to 95 per cent. repeat orders.

About six months ago The Star Clay Products Company, of San Antonio, Texas, purchased a 50-ft. center to center, double chain elevator; regarding this elevator they say: "It is a splendid chain for clayworkers on account of the gritty material that has to be handled.

"The malleable link chain is of short life on account of the great wear, especially so with our material as it is a fireclay and very gritty.

"Of course we have only used this chain a short time—but up to present writing it has given splendid satisfaction."

The Union Chain and Manufacturing Company is located at Seville, Ohio.

Keep the Plant Busy in the Winter Days

The arrival of freezing temperature in the shale and clay mining territory compels many clay-product plants to shut down. Their production is limited by weather conditions and only a partial profit is derived from the plant.

By resorting to new methods of operation and

By Blasting With

DU PONT

RED CROSS

Low Freezing Explosives

many of the brick and tile plants are able to keep their machinery supplied with raw material throughout the winter months.

Why have an idle plant when a few charges of explosives properly placed will supply an abundance of shale and clay for steam or hand shoveling? Get the maximum production and profit. Operate a 12-months' plant —not one governed by Jack Frost. Keep your plant working every day.

Learn this new way to blast shale and clay.

Send for free booklet: "Explosives for Blasting Shale and Clay."

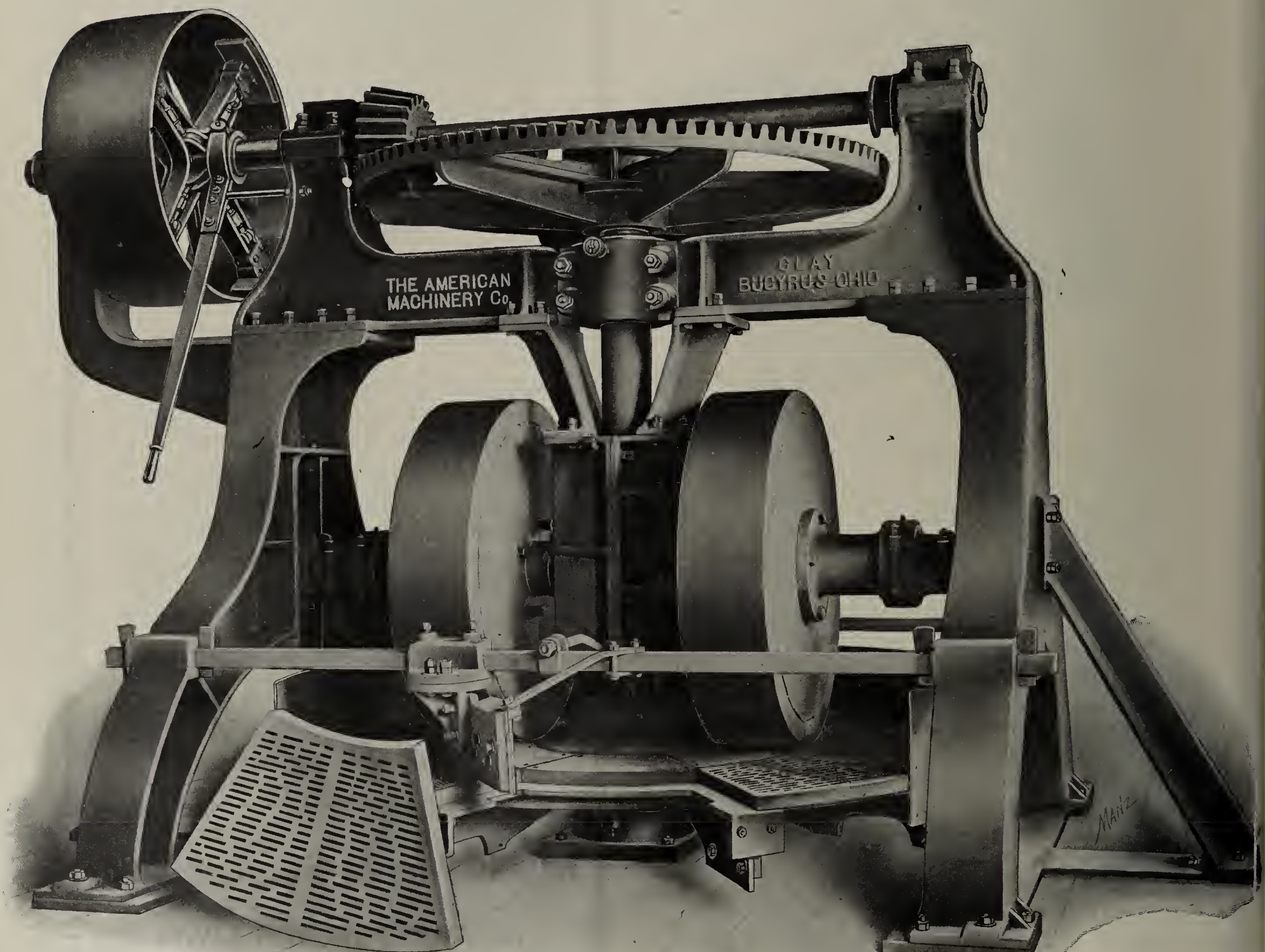
E. I. du Pont de Nemours & Co.
Powder Makers Since 1802
WILMINGTON, DELAWARE

The American No. 57 Heavy Duty Dry Pan

Has STABILITY built right into it—that's why it gives such remarkable service to so many of the best equipped plants in America. The heavy mullers and extra large screening surface make it possible to get greater capacity than from other pans of similar size. This is just another one of our progressive measures to meet the demands of clay plant managers for the most dependable, economical and lasting equipment.

The American Clay Machinery Co.

BUCYRUS, OHIO



SAY "I SAW IT IN BRICK AND CLAY RECORD"

BRICK and CLAY RECORD

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

Anticipatory

¶ In addition to the usual departments, with their suggestions of definite helpfulness, the DECEMBER 5th ISSUE of "BRICK AND CLAY RECORD" will contain some features of more than ordinary value and interest.

¶ It has been decided to hold a second ceramic students essay contest. Full particulars and details will be given in the NEXT NUMBER.

¶ The finding of a market for "light hard" and culls should be of special interest to the common-brick manufacturer. "BRICK AND CLAY RECORD" has had an investigation made in the Hudson River District to see what could be done about locating some new outlets for these by-products. The results of this investigation have been tabulated in a very interesting and readable manner by a New Yorker. Read his story in the DECEMBER 5th ISSUE!

¶ "Principles and Results," by Dwight T. Farnham, is the closing article in the somewhat lengthy but fascinating series which this brilliant engineer has been contributing to "BRICK AND CLAY RECORD." Don't miss it NEXT ISSUE.

¶ The purchase of coal on specifications is a method of buying that is forging to the front in all industries where steam is generated for power in the factory. A paper on this subject applying to the clayworking industry, will appear in the DECEMBER 5th NUMBER.

Are you taking time to read the paper? If not, you are positively robbing yourself of money, for there is not one issue of "Brick and Clay Record" published that does not contain an idea contributed by a fellow manufacturer, the adoption of which in whole or in part would put dollars into the pocket of some clayworker.

The EDITOR'S CORNER

NOW that convention time is approaching once more, our thoughts naturally turn to these annual gatherings and we wonder what kind of a "time" we are going to have this year. We are wondering whether the old type of cut-and-dried, long, uninteresting "paper" is going to prevail or whether clay's cohorts will "talk business."

A splendid spirit of progress is becoming very much in evidence in the programs covering the annual meetings of state and national associations. Last year saw a decided improvement in the ideas of what a convention ought to be and, as a result, the members of many of the associations are taking a renewed interest in matters that have always been of vital importance to them but they have never been made to see it that way.

This year the American Face Brick Association has made a most commendable start in the right direction. There is little doubt in the mind of anyone who is closely in touch with the situation but that the face-brick makers will accomplish something at their coming gathering.

We feel confident that other associations are going to follow this splendid example. It's in the air.

* * *

Strengthen Your Defenses

"I DON'T WANT publicity of any kind," said a quiet but aggressive clay plant owner the other day. When asked the reason for this attitude, this clayworker replied: "I don't want these labor agitators to know I'm in business."

We can all sympathize with this man's motives in the matter and thoroly agree with him in his policy of avoiding trouble by not looking for it. Yet these few words reveal a condition that is serious, to say the least.

We can gain little by loudly condemning the I. W. W. or others of their class, but we can profit considerably by assuming an introspective attitude of mind—looking rather where we can build up our own defenses, eliminating any chance for dissatisfaction among the workmen and thereby closing the door to strikes or similar disturbances.

In order to accomplish this end, many are turning to scientific management and bonus systems. In this time of need for knowledge on these subjects, "Brick and Clay Record" has been glad to publish such articles as those by Dwight T. Farnham, now drawing to a close, and that by H. R. Straight in the June 20th, issue, telling how he pays high wages and makes a bigger profit by so doing. If you are looking for a remedy for your labor troubles and have not read these articles, lose no time in getting at them.

* * *

A Detrimental Habit

LIFE is just a bundle of habits, philosophers tell us. Some of these habits are good, some are a necessary part of our everyday living, while others are decidedly bad. If we are aiming high and are trying to get the best out of life, we are constantly striving to eliminate from our existence those customs that are a detriment to us.

A business habit that is not contributing anything to progress is the custom of doing very little, if any, construction work during the winter-time. By construction work, we mean the erection of buildings and structures of all kinds.

When we analyze the supposed reasons for no winter building, we can hardly find an argument in favor of this custom that has not been disproven by actual experience. It is not an uncommon sight to see brick being laid in freezing weather, yet there are many who will tell you that it ought not to be done. Charles C. Casey, in his article on "Is the Winter Building Dull Season Real or a Dream?" appearing on another page of this issue, recites an instance where brick were laid in a below-zero weather during the winter immediately following the great fire of 1871 in Chicago, and years later when some alterations made necessary the removal of some of these brick, it required a cold chisel and a sledge to do the job.

Just picture to yourself—if you are a manufacturer of brick, hollow building tile or terra cotta—the added size of your profits and the greater opportunity for efficient operation of your factory if there was no slump in the demand for your product during the winter. You can make this dream of an Elysium a reality, if you are willing to get together with the architect and contractor in a co-operative movement to *sell* the building public on the winter building idea, and thus overcome the bad habit of "waiting until spring."

* * *

"Made in America" Colors

A MANUFACTURER of colors such as are used in the production of ceramic wares, particularly pottery, writes us, calling our attention to what seems to be a misleading statement on page 416 of the September 5th issue.

The item in question appeared under the heading: "Domestic Color Makers After Pottery Business," and went on to say that some companies that have recently turned their attention to making colors have been interviewing pottery manufacturers with a view toward extending this business, but that, owing to the lack of foreign experience, there was some doubt as to domestic manufacturers being able to supply the potters with their needs in ceramic colors. Our staff correspondent, however, admitted that some American potteries *have been using* domestic colors for some time because of the difficulty in securing the imported material.

The color manufacturer who wrote us states that his concern has made ceramic colors in this country for more than twenty-five years and that it is entirely unnecessary for potters to seek foreign sources for such supplies. Furthermore, he states at no time since the outbreak of the European war has he been unable to supply the trade and does not anticipate any difficulty along this line in the future. The users, therefore, of ceramic colors among the pottery, glass, enameled ware, tile, terra cotta, brick and other clay products manufacturers need not be dependent upon such supplies from Europe, but can get their requirements "Made in America."

TO SOLVE BESETTING *at* BIG CON-

Coming Gathering of Manufacturers
cember 6th, 7th, and 8th, Amid Rising
Crisis in the Face-brick Division of the
tion Taken There Will Mean Much

THINGS TO REMEMBER

¶ First, there will be but one session of the membership of the Association each day.

¶ Second, the arrangement of the program will permit ample opportunity for manufacturers and dealers to make appointments to discuss private affairs, which will not conflict with their attendance at the sessions of their annual meeting.

¶ Third, all manufacturers of face-brick, regardless of membership in the American Face Brick Association, are cordially invited to attend all sessions.

¶ Fourth, no papers will be read, and nothing but face-brick business will be discussed.

MEETING in the closing days of a decidedly unusual twelvemonth, with the price of coal and other supplies jumping so fast that it takes a manager of no mean athletic ability to half-way understand, from week to week, what his material is costing him; with a growing scarcity of labor, accompanied by the various manifestations of unrest, the effects of which will undoubtedly be very seriously felt, sooner or later, in every corner of this country, as it is now being felt in the North and East; with every prospect for the biggest demand for face-brick in 1917 that the industry has ever experienced—the question "What are you going to do about it?" looms up before the face-brick manufacturers and dealers of America.

The answer is simple and its application entails the surmounting of no great obstacles, namely uniform cost accounting and the adoption of an open-price policy, backed up by the other wholesome policies which are fostered by the American Face Brick Association.

For those interested in the manufacture and sale of face building brick who are willing to approach their problems with an open mind, looking toward a prompt solution, no wiser step could be taken than to attend the coming conventions of the American Face Brick Association and the Face Brick Dealers' Association which will take place at French Lick, Ind., December 6th, 7th and 8th, where each will have full opportunity to talk over his troubles with sympathizing fellow clayworkers.

MANUFACTURERS' MEETING WILL TOUCH HIGH POINT

Every indication points to the most wonderful gathering of face-brick makers that has ever been held. The printed program, which is about ready for distribution, does not give very much of an inkling as to the importance of the conference to one who is not in touch with prevailing conditions, but everything that has a place on the program will be a subject of immediate interest to every manufacturer who is making face-brick.

The business of an annual meeting will be taken care of in short order at the first session, which will take place on the afternoon of Wednesday, December 6th. This business includes the reading of the minutes, President Paul B. Belden's address, reports by Secretary-Treasurer R. D. T. Hollowell, and an important announcement to be made concerning the association's cost finding policy by J. M. Adams, who is chairman of the Cost Committee.

Immediately following the adjournment of the first session, district chairmen will be introduced and the manufacturers will adjourn to the various rooms assigned to the different districts for a "get acquainted" meeting, to precede the round table conferences of the districts, which will be held on the afternoons of the two succeeding days, December 7th and 8th.

The balance of the program will include a discussion on "Recognition of Legitimate Dealers," lead by Geo. A. Bass, president of the Hydraulic-Press Brick Company, a vote upon an amendment to the by-laws to adopt an open-price policy and a discussion and action upon a permanent basis for dues and assessment for the support of the organization.

OPEN-PRICE AMENDMENT TO BE ADOPTED

Regarding the open-price plan, which was discussed at the Cleveland (Ohio) meeting of the executive committee of the American Face Brick Association on October 6th, the amendment which was agreed upon at that time will be adopted almost certainly. This amendment provides for the posting of prices made to dealers by every member of the association and carries an obligation to report to the secretary-treasurer's office all deviations from the price-lists on file.

The Famous "Pluto" Spring on the Grounds of the French Lick (Ind.) Springs Hotel

PROBLEMS
FACE-BRICK
VENTION

and Dealers at French Lick, Ind., De-
Costs and Stationary Prices, Marks a
Clay-working Industry, and Ac-
for Its Future Progress and Prosperity

COST ACCOUNTING AND THE OPEN PRICE POLICY

¶ J. M. Adams, secretary and general manager of the Ironclay Brick Company, and chairman of the association's Cost Committee, will make an important announcement concerning the association's cost finding policy at the opening session on Wednesday, December 6th.

¶ A vote will be taken some time during the convention on a proposed amendment to the by-laws which, if adopted, will do much toward making open price (recognized as being perfectly legal), a reality among face-brick manufacturers.

The secretary-treasurer will advise all members quickly concerning these deviations, giving sufficient information so that the jobs on which the deviations were made can be readily identified. The great good which the faithful and persistent carrying out of this policy will mean is that manufacturers, who are today making their prices in accordance with what they *hear* their competition is asking, will base their prices upon *absolutely correct information*—so far as the market's conditions are concerned. This policy is expected to be of considerable help to the members of the association, as it will mean the necessity for monthly meetings of each producing district, in order to discuss the causes for the various deviations, costs, and so forth.

ROYAL WELCOME AWAITS CONVENTION DELEGATES

That it will be an unmarred pleasure to attend the coming convention at French Lick is taken for granted by those who took a part in the "return engagement" which was "played" in December, 1914. After trying in vain to find a meeting place which has more to offer in hospitality, courtesy and painstaking attention, those who had in hand the choosing of a meeting place, have decided that French Lick cannot be excelled.

Approaching the Seventeenth Hole on the French Lick Springs Hotel Golf Links

"The Carlsbad of America," by reason of its advantages, central location, the value of its waters and baths, and its facilities for the comfort, health and entertainment of its patrons, has become widely and favorably known as the greatest health resort in this country. It enjoys a large patronage from all parts of the United States and Canada, and foreign countries contribute each year an increasing number of visitors.

HOTEL IN SETTING OF NATURE'S BEST HANDIWORK

The springs are in a beautiful valley of southern Indiana, forty miles from the center of population of the United States, and amid the most charming and picturesque surroundings. Noble ranges of hills rear their summits on either hand, while long vistas of valley, grassy meadow, upland and willowy forests stretch away to the horizon, forming an ideal setting for this most beautiful of America's resorts. Because of its rugged nature, the country retains much of its primitive wildness, the beauty of which is made easily accessible by good roads for motoring and horseback riding. The domain of the Springs Company comprises two thousand acres, including the springs, lawns, golf course, gardens, dairy farms and surrounding hills.

The climate is that of the lower Ohio valley and, as the elevation is five hundred feet above the sea level, the atmosphere is neither too bracing nor too enervating. Autumn in French Lick Valley is delightful, the fine weather frequently lasting well into December.

VISITORS WILL BE IN A FAMILIAR ATMOSPHERE

The streets and main thorofares of the town and surrounding the hotel are paved with brick and easily kept clean and free from dust. Buff brick also play a large part in the construction of the six-story fire-proof Springs Hotel, which contains five hundred rooms with all of the modern conveniences of the larger city hotels. Three additions have been made to the original part of the building in the past eight years. A fourth addition of one hundred and five rooms has just been completed. The necessity for such frequent additions is conclusive evidence of the growing popularity of French Lick Springs as a health and pleasure resort.

The commodious lobby, luxuriously decorated and furnished as a spacious lounging room, is cheerful and inviting. Two convention halls, having seating capacity of four hundred and one hundred and fifty respectively, afford splendid inducements to conventions. The absence of outside attraction to draw delegates away from the meetings has established the French Lick as an ideal spot for such gatherings.

HOTEL RATES AND TRANSPORTATION

The hotel is conducted on the American plan; the rates are from four to ten dollars a day, according to size, location and furnishings of the rooms. Every bed-chamber and parlor looks out upon the lawn, garden or forest. The appointments and service appeal to a refined and cultured class of patrons.

Two railroads enter French Lick, namely the Chicago, Indiana and Louisville, "Monon route," and the Southern Railway. Connections at Chicago, Indianapolis, Louisville, Evansville, Cincinnati and St. Louis will bring delegates either directly to French Lick or so very near that only a short time will be consumed in arriving at their destination.

GET INTO THE HARBOR

There is little doubt but that the coming convention will mark an epoch in the history of face-brick manufacture in America. Crises are confronting manufacturers on every hand, absolutely demanding the readjustment of methods, processes and policies in the industry. Whether these readjustments will be for better or for worse, will depend largely upon the individual manufacturer. If he is willing to stand with his fellow manufacturer in an effort to solve his problems, it is almost certain that he will pass thru the present troublesome times unscathed; on the other hand, if he is determined "to go it alone," he has some pretty rough sailing before him, with the wreck of his ship staring him in the face.

French Lick is a good haven in which to lodge. There expert mariners, meeting together, will map out a course that will mean disaster to none—safety to all.

PROGRAM FOR THE CONVENTION

First Session

2:30 P. M., Wednesday, December 6th, 1916.

1. Call to Order.
2. Calling of Roll.
3. Reading of Minutes.
4. President's Annual Address—Paul B. Belden.
5. Reports of Secretary-treasurer—R. D. T. Hollowell.
6. A. F. B. A. Cost Program—Announcement by J. M. Adams, chairman, Cost Committee.
7. Vote Upon Amendment to By-Laws.
8. Adjournment for "Get Acquainted" Meetings in the Various Production District Rooms.

Second Session

10:00 A. M., Thursday, December 7th, 1916.

1. Discussion: "Recognition of Legitimate Dealers," lead by George A. Bass, president, Hydraulic-Press Brick Company, St. Louis, Mo.
2. Open-price Policy (Amendment to By-Laws)—Announcement by J. Parker B. Fiske, Jr., chairman, Sales Committee.

Round Table Conferences

2:30 P. M., Thursday, December 7th, 1916.

Third Session

10:00 A. M., Friday, December 8th, 1916.

1. Proposition by "Brick and Clay Record," relative to a substantial cash prize competition for papers, using A. F. B. A. Ethics as the subjects.
2. Basis for Assessments.
3. Unfinished Business.
4. Election of Officers.
5. Adjournment.

Round Table Conferences

2:30 P. M., Friday, December 8th, 1916.

BROWN *is* RUTGER'S NEW CERAMICS DIRECTOR

George H. Brown, Cr. E., formerly assistant ceramic chemist with the United States Bureau of Standards at Pittsburgh, Pa., has harkened to the call of Rutger's College, New Brunswick, N. J. and has relinquished his position with the Bureau of Standards to assume the directorship of the ceramic department at the school in question. It will be remembered that the position of director at Rutger's has been open for several months, following the resignation of Professor Cullen W. Parmelee, who is now connected with the ceramic teaching staff of the University of Illinois.

Mr. Brown is a graduate of the Ohio State University, having completed the course in ceramic engineering in 1909. During his college course, Mr. Brown spent two years in practical work, having been connected with the Hydraulic-Press Brick Company at Washington, D. C. Upon leaving college he became connected with the Bureau of Standards at Pittsburgh and, during the seven years of his connection with that organization, has been identified with many of the researches carried on at that point, and is the author of several publications dealing with ceramic problems. He has done some very excellent work in connection with industrial co-operation between the Bureau of Standards and ceramic plants, in many cases being successful in applying new processes or developing new products.

Mr. Brown has also been honored by being elected trustee of the American Ceramic Society.

"His loss is felt severely by the Bureau," says A. V. Bleininger, in a recent communication, "and the ceramic department of Rutger College is to be congratulated in securing a man so well qualified for the position."

GEORGE H. BROWN, Cr. E.

IS *the* WINTER BUILDING DULL SEASON REAL *or a* DREAM?

What Some Architects and Contractors Think About It and How a Few Manufacturers Have Actually Broken the Shackles of Custom

By Charles C. Casey

ABOUT A YEAR AGO, a building material manufacturer—one who makes steel window sash—conceived the idea that, for the most part, the dull season condition in the building industry was imaginary, and proved it for himself. That is, it seemed clear that it was not necessary for him to let loose more than half of his factory force every year and that it was not necessary for nearly all contractors, architects and building material manufacturers to do practically the same thing. It was necessary only because the industry was admitting or tolerating a condition of thought which really had no foundation.

That the winter-building dull season was not real but a dream was proved by a merchandising idea conceived by one of the executives in the marketing end of the steel window sash maker's business; it was an idea based upon the knowledge that in nearly every industry there has been a dull season at one time or another, but the most of these dull seasons are, in these modern times, proving to have never existed, *except in the minds of the men in the industry.*

SEASONAL BREAKFAST FOOD BUG-A-BOO DISPELLED

"Corn Flakes," for instance, used to be exclusively a winter breakfast food. Not one retailer in a hundred even stocked the goods in summer-time, and practically all of them planned their purchases so that they would be entirely out of stock by early spring.

This condition has been entirely changed. You can buy—hundreds of thousands of families actually are buying and using—nearly any kind of breakfast food at any time during either winter or summer. There is scarcely even a noticeable let-up in the sales of this commodity in the summer months, which means that the factories do not have to let most of their organization go at that season of the year and build up a new organization every fall.

How was it brought about? By merchandising. It was as simple as A B C.

The summer dull season in the cereal business originated in the minds of men who thought they would be doing well if they could get people to eat breakfast food in the winter time. Even that would make an enormous market. Later, when they found that some people did eat breakfast food in summer, they began to experiment along a new line and then, after a few years, their factories operated in summer also.

The steel window sash manufacturer mentioned at the beginning of this article, started things the same way about the winter building season. He was already selling some material for winter building work. If some contractors could work in winter, why could not others? It was the inquisitive disposition of the merchandising man. The first thing he did was to go to the architects to see what they thought of it.

ARCHITECTS FAVOR WINTER BUILDING

He found that practically all of the more progressive architects felt about the same way. Their organizations also were being disrupted at the end of each season and had to be built up again every spring. It was an inexcusable and unnecessary loss, and an unreasonable condition.

Every one of them knew that winter building was actually being done, and that it was practicable within reasonable limits, and there was no real, provable or substantial reason why everybody should throw up their hands at the first chilly breeze and postpone all thought of building until spring.

"We are practically in the same position as you are," said one of these architects to the window sash maker. "The architect and his force are practically idle during the fall and winter months and then, during the spring and summer, are forced to work night and day. We are continually advising our clients to make their preparations for building and order their materials during the winter months. We believe that it would be a good thing for all parties thruout the building trade to take concerted action toward persuading prospective builders to have their plans and specifications prepared in the fall and winter months. We believe your proposition for a campaign in behalf of more winter business would be a paying one and we give it our hearty endorsement."

BUILDING TRADE TO BLAME FOR DULL SEASON

Note, this architect says he is continually advising his clients to order their materials during the winter months. Note also, that he says it would be good business for the entire building industry to take this attitude.

In other words, he suggests that, if the building industry

THINK what it would mean to you—Mr. Brick, Tile or Terra Cotta Manufacturer—if there was no annual let-up in your sales during the winter months! Manufacturers in other lines have evaporated the dull season idea. Why can't you? Get the inspiration that will "sell" you on the possibilities for a year around capacity business by reading this convincing merchandising article.

itself would assume that the builder *does* intend to build in winter, more of them *would* build in winter.

But the attitude of the building industry has been almost to advise against building in winter. The mental attitude is to advise the builder to postpone until spring.

This year, approximately $900,000,000 will be spent in building. Probably $700,000,000 was spent during the summer months. During this time the entire building industry has been too busy to be comfortable and during the balance of the year almost the whole industry will be idle on an undesired vacation.

The reason for most of this is that the building industry itself has allowed the public to get the idea that winter building work is not as good as summer work—that a building erected in the winter-time is not as good as one erected in summer.

It has not been the extra cost which has caused builders to postpone work until spring. In fact, there really isn't much extra cost, for building material, as a whole, averages cheaper in the winter and labor also is so much easier to get that it also averages cheaper.

LABOR MORE EASILY OBTAINED IN WINTER

Said another architect: "My experience leads me to believe that building work in winter is practically as well done as work in summer. Of course, there are more days lost during the cold weather but, owing to the fact that labor can be more easily obtained in winter, I believe this more than offsets the extra cost. I think a strong campaign for more winter business would be a good thing, but you must convince the prospective builder that he can get as good a job in winter as he can in summer."

BRICKLAYING IN WINTER FOLLOWING CHICAGO FIRE

After the Chicago fire in 1871 the building industry in Chicago had an experience which ought to have proven for all time that winter building was practicable.

"Long ago," said one of the oldest and most experienced Chicago architects, in discussing this particular experience in the industry, "it was thought that brickwork could not be done properly in very cold weather. But that was decided to be wrong when the great fire of 1871 made it imperative that Chicago be rebuilt at once in one of the coldest winters ever known here. The large wholesale store of Field and Leiter at Madison and Market streets was erected when bricklayers worked in pairs with coke fires between them to heat tools and keep the mortar from freezing. Every brick was frozen fast as soon as laid. Several years later, when they had the windows altered and made higher with square heads, *every brick in the arches had to be cut out with a cold chisel.*"

This certainly proved that is was *possible* to lay brick in winter and lay them solid and permanent. In fact, this experience in Chicago ought to have settled for all time the question of the practicability of getting quality into winter work. Chicago *had* to build in winter-time and in the coldest winter ever known in that city up to the time in question. None of the great buildings erected during that winter have yet fallen down, and the quality of the work probably averaged as high as similar rush work would have averaged in summer-time.

WHERE FREEZING DID NOT RUIN FOOTINGS

There has always been a belief that concrete could not be laid in cold weather, but the prominent Chicago architect last quoted tells of an experience in the erection of the big Ryerson building just east of the Masonic Temple in Chicago.

"The fine days," he said, "continued until late in autumn. The contractor was pushing the work but neglected to guard against freezing. By a sudden change in the temperature the fresh concrete was frozen solid over night. Thinking the footings were spoiled the work was abandoned until spring, then all were taken out except two. A change in plan made it unnecessary to remove these until the building was nearly completed, and then it was necessary to *drill and blast,* for the concrete in these two footings proved *much better than in the new work.*"

This again ought to have shown the merchandising possibilities of building in winter. But there is still a fear in the minds of architects, contractors and building material makers. It is the old can't-be-done thought. But it was done, and *is being* done. And what is being done certainly is not impossible nor impractical.

CAREFUL WORK PROMOTED BY YEAR-AROUND BUILDING

Another architect says that it is to the advantage of owners and investors that this dull-season idea be evaporated. With the elimination of the idea of rushing to get a structure finished ahead of cold weather, buildings will have more careful construction.

"Winter building," he said, "will work to the advantage of manufacturers, employes, mechanics, contractors, architects and *especially* to the advantage of *owners* and *investors* whose work will not be unduly rushed, and who will obtain better workmanship, better material, better prices and a better building. Before the bad weather sets in is the time to emphasize the advantages of winter building. Suggestions to the public will certainly do good. A national campaign along this line should work wonders and the building material manufacturers are in a position to promote it."

It is being found by contractors who are making a practice of building the year around that they profit in several ways. The most important advantage, probably, is that they are able to retain their organizations and do not have to be continually building up a new working force every spring. They would also find that, by eliminating the rush, they could distribute their work more evenly and be able to save, not only on winter, but also on summer work.

Rush jobs always cost more; there are always more mistakes and it always means the use of untrained and consequently slower help, higher prices for materials and excessive cost all around. So winter building is really no more expensive than summer construction.

WILLING TO PAY EXTRA FOR WINTER BUILDING

L. C. Watson, head of the Aberthaw Construction Company of Boston, a firm which puts up a number of good-sized buildings every winter, says that his company finds that each year they have found several owners who have considered it worth while even to *pay extra* to assure the certain and early delivery of completed buildings at the beginning of the new year when it is easiest to rent buildings, offices, and so forth.

In other words, this Boston contractor is merchandising winter building. That is, he is selling it.

He is taking an aggressive attitude toward the problem. He is showing his clients that he can give just as good service in winter as in summer, and he is doing it.

So are all the other contractors who are taking the same attitude toward winter building.

HOW "FENESTRA" PEOPLE "BOOSTED" WINTER SALES

Since the campaign last winter of the Detroit Steel Products Company on its "Fenestra" solid steel windows, there has been a growing interest shown by other manufacturers in similar merchandising efforts.

The "Fenestra" people ran several advertisements in national magazines and the trade press, featuring winter building and slightly lower prices on their product as an inducement to winter buying.

The effect was almost immediate and by December the big factory was "swamped" with orders. December with them had previously been a baby month, but last December was the biggest thirty days they have ever had in any previous year. Instead of "letting out" half or more of their factory organization, they found it necessary to employ additional help in the middle of their "dull" season.

It was not an accident, even if unusual prosperity conditions had "boosted" building work; it was the natural result of a merchandising plan, a sales idea, a selling effort.

It showed what can be done in practically any industry. In fact, the plan was tried because the merchandising men in the concern knew what similar plans in other industries had accomplished.

AUTOMOBILE MAKERS EVEN UP YEAR'S BUSINESS

In the building materials business it has been the custom to advertise, for instance, most heavily just before and during the rush building season, and to almost stop advertising during the balance of the year. This same thing used to be tried in the automobile industry. Auto manufacturers almost expected to shut down during the winter months. Cold weather constituted a dull season because most people were expected to buy machines in the spring and summer. But the large Ford plant in Detroit made and sold 508,000 automobiles last year.

To accomplish that enormous output it was necessary to average 1,700 machines a day in the big factory. At no time during the winter was the average production less than a thousand machines a day.

When you consider the amount of space occupied by an automobile and then try to find for a manufacturer a place to store a hundred thousand of them, or two or three hundred thousand, during the dull selling season, so that they will be on hand for the rush season, you will quickly see that it was not possible for the Ford Motor Company to make machines much faster than they were being sold. So it was necessary to sell machines all winter and the Ford organization did it. They almost entirely overcame the handicap of a winter "dull" season.

In doing this, they have taken the lead in the automobile industry and this coming winter there will be more automobiles sold during the dullest of the dull months than during the heaviest of the rush months two or three years ago.

This change of affairs was not an accident either. It did not just happen. It was the result of a merchandising plan. The merchandising men in the automobile business have thrown all of their can't-do-its out of the window, and have put the emphasis on the other end of the argument.

BORROW IDEAS FROM OTHER INDUSTRIES

Incidentally, Norvall Hawkins, to whose big merchandising ideas is due most of the credit for these $200,000,000 of annual sales (for it has been his job to sell the Ford product), modestly passes the honor on to other industries for most of his knowledge of sales methods. He is learning constantly from other industries, for long ago he realized and appreciated that the best of the methods of any industry—whether it be textiles, coal mining, boots and shoes or clay products—have lessons in them for the live wires of every business. "Ideas I found in the millinery business," Mr. Hawkins says, "I have applied to the automobile business."

There is a lesson in that statement for every clay products manufacturer and salesmanager. Hawkins is probably the highest paid sales executive in the world, and he has now built up one of the most efficient sales organizations in this country.

That is what is coming in the building industry. Merchandising men, knowing what has been accomplished in other industries, are beginning to see thru the winter building handicap. They are beginning to lay their merchandising plans with more pressure on the cold months than they have ever exerted on that particular season before. The result is already appearing in the gradual leveling off of the high points in the building season. In every line of constructional endeavor winter sales are growing larger and larger in proportion to the summer business.

The various manufacturers of many, many different kinds of products in the building material field can altogether very easily exert an enormous pressure on that winter-building dull season bug-a-boo—a pressure which can, and eventually will literally squeeze this dull season out of existence.

The effect will be to distribute that $900,000,000 annual building expenditure over the whole year and add to it a very large sum which is not now being spent, but which would be spent by men who change their minds because they cannot do things when they want to do them.

CO-OPERATIVE EFFORT TOWARD SAME END NEEDED

Of course, there are problems affecting the details of construction which still remain to be solved, but the big point—the real answer to more winter building—is to sell building material manufacturers, architects and contractors on the idea. When they are willing to do as the automobile industry has done—forget the can't-do-it feeling and *try*—they will find the public, those who pay for buildings, willing to meet them more than half way.

This has already been found to be true by a great many contractors who have themselves been thoroly sold and are now willing to say that they *can* do it.

The dull season can only be made a prosperous one in the building industry, however, by co-operative action. Each individual manufacturer can increase his own business by more aggressive selling methods in the direction of winter building, but the big success will come in proportion as all building material manufacturers work more aggressively in the same direction.

ELECTION SLOWS UP NEW YORK PLAN FILINGS

ELECTION IS OVER and the country is safe, saved and satisfied, according to those who say "the people rule." True, the election did absorb a whole lot of attention from business interests the two weeks preceding the eventful day, but it absorbed a lot more when all the big New York City dailies on election night began conceding the election of the Republican candidate and followed this with early extras setting forth as the absolute truth that Mr. Hughes had been elected, and then followed this up with stories directly to the contrary a few hours later.

You could hardly blame building and other business men for being "mixed up" for the few days following. For a day or two the building business fairly backed up and stood still. It was a dull week—the week of election—in the materials market. It was a dull week for the filing of building permits—one of the dullest of the year 1916. Plans were filed in Manhattan for just four new buildings costing $145,650 for the week of November 4th to November 10th. For the corresponding week of 1915 the filings aggregated $552,800. Alterations filed the week ending November 10th were considerably higher, the figure being $365,095 as against $132,140 for the corresponding week of 1915.

DETAILS OF PRE-ELECTION CONSERVATISM

During the week of October 28th to November 6th the plan filings totaled $207,000, which was a heavy falling off for a like period of 1915 when the filings totaled $1,450,000. In the Bronx for the week ending November 10th the plan filings totaled $82,000, as against $466,800 for the corresponding week of 1915. In Brooklyn for the week ending November 10th the cost of new buildings was $731,600 against $819,750 for the corresponding week of 1915. In Queens the plan filings for the week of November 10th totaled $379,265 against $321,270 in 1915. In Richmond the filings for the week amounted to $52,750 aaginst $20,343 for 1915. It will be seen from these figures that there has been a big falling off in the large boroughs of Manhattan, Brooklyn and Bronx and a considerable increase in Queens and Richmond.

HUGE TOTAL TO DATE UPSETS ALL PRECEDENT

At first glance, one might incline toward the idea that the building business in Manhattan was on the wane, falling back on the old argument "figures don't lie." But if anybody has a notion that the building business is on the wane let him give these figures the "once over." From January 1st to November 10th the cost of new buildings as per plans filed reached the enormous total of $107,827,095 for Manhattan alone. For the corresponding period of 1915 the total was $55,853,488. Even alterations in 1916 ran ahead of 1915, the figures for 1916 being $17,440,670 and for 1915 $12,359,610.

In the Bronx there has been a noticeable falling off. The Bronx is the one dull spot on the map of the world's greatest city, in so far as the building business for 1916 is concerned. There is no getting away from it, business has not been up to what it might have been. From January 1st to November 10th, 1916, the plan filings aggregated $15,259,732, while in 1915 they reached $23,211,850. But the Bronx is not wholly to blame. The Bronx needs improved transportation facilities to give it more room to grow and these are coming rapidly. The Bronx is destined for a "boom" and they do say in Manhattan that the "dust will begin to fly" early in 1917 and that the borough will make up for lost time then. The Bronx is bidding for $50,000,000 worth of building likely to come as a result of the new zoning restrictions.

Old reliable Brooklyn has held her own against odds this year and shows a healthy increase. The filings to November 10th total $37,398,180, and for a corresponding period of 1915 $33,375,440. Alterations for 1916 cost $4,828,690 and in 1915 $3,569,895.

In Queens the plan filings are just a trifle below those of last year, 1916 being $17,219,697 and 1915 $17,849,540. Alterations $1,821,378 for 1916 and $788,302 for 1915.

In Richmond for 1916 new buildings to November 10th cost $1,546,432 and in 1915 $2,056,153. Alterations in 1916 were valued at $222,290 and in 1915 $236,920.

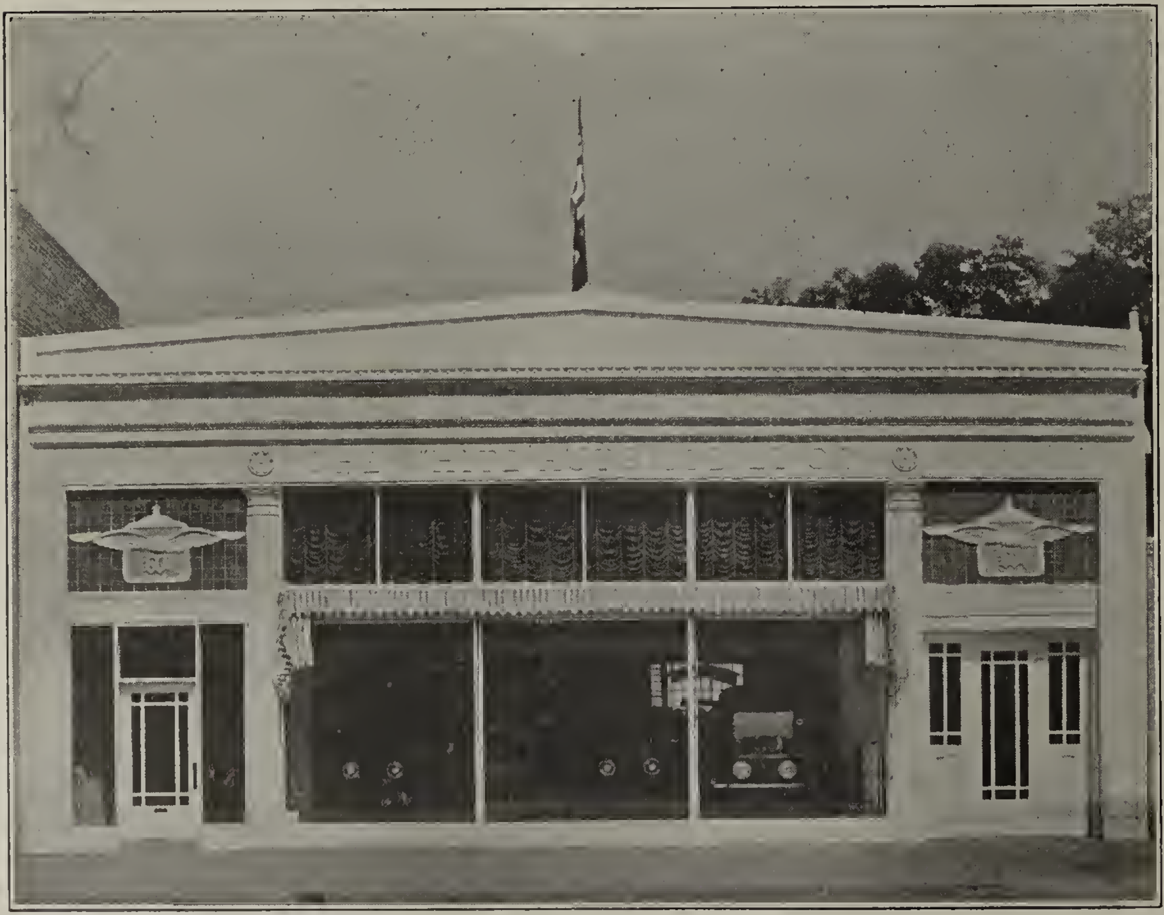
NINETEEN-SIXTEEN BANNER BUILDING YEAR

On the whole these figures show conclusively that despite everything—strikes, lock-outs, labor troubles, increased cost of most every commodity that goes into building, and more money for everybody who turns a hand to putting up the building—the 1916 building year has been a banner one. Right now, today, the market reflects a strong demand for such products as brick, sand, lime, cement and steel. The stuff is high-priced and much sought after, and business is good.

OPERATORS PREPARING FOR REAL ESTATE ACTIVITY

No big contracts have been let during the week of this writing (November 13th to 18th), but some large ones are figuring. Brick is going up at the rate of a quarter a week. Cement took a jump this week and labor continues scarce and independent and winter is coming nearer, but still all signs point to a mighty active December in the New York building trades. The New York "World" says: "Operators in all branches of real estate are geting ready for a period of increasing activity, with advancing prices." To this the "Dow Building Service Weekly" report adds: "If there is any doubt about the continued demand for building materials, the improvement in speculation in real estate is the answer. Large profit takings in Wall Street are easing the mortgage market and the quick earnings of stocks are being placed in the more permanent forms of investment like real estate. This tendency is the basic cause of the ascending prices of building materials, because dealers are trying to anticipate the high prices that are almost sure to prevail next spring by forward buying."

BURNED CLAY PUTS BEAUTY *into the* GARAGE



¶ An example of the growing use of terra cotta in small but high-class commercial buildings.

¶ The accompanying illustration shows a garage and service station in Denver, Colo., constructed of white and blue matt glaze terra cotta, which is one of the most distinctive buildings of its type in the West.

THREE IMPORTANT ELEMENTS *of* SCIENTIFIC MANAGEMENT

Staff Investigation; Written Standards and Instructions, and Intensive Labor Development Play Vital Part in the Factory's Successful Operation According to Scientific Principles

By Dwight T. Farnham

THERE IS A CERTAIN TYPE of superintendent who might be characterized as an iron-clad optimist. He is not so much to blame for being a liar, inasmuch as he is largely a product of circumstances. It is rather because he knows that certain things are expected of him by his superiors and he, therefore, does his best to deliver the goods—in words, regardless of whether the facts warrant his statements. This is but natural since the support of his family strikes him as an immediate and important demand, while he feels that a strict regard for the exact truth is, perhaps, a worthy ideal but that it is a luxury better suited to those who have sufficient independent income so that they can afford to displease the Powers-that-be when they stalk thru the works in their periodical inspection.

In other words, this type of superintendent knows that, if the general manager sees anything wrong in his trip thru the factory and immediate and plausible explanation is not forthcoming, he will be severely censured. This leads the superintendent to develop any latent talent he may have for extemporaneous excuses and, under stress of circumstances, he often sacrifices veracity to plausibility. He knows that the general manager wants everything to be all right thruout the works, and he does his best to satisfy him. His cry is eternally: "Everything is all right," regardless of facts. This is a little hard on the stock-holders at times, because many things are dismissed with a brief and inexact explanation which, if thoroly and honestly investigated, would have been settled very differently, with considerable resultant economy, in operation. *As usual, however, the higher-ups are in a large measure to blame.*

EXPERIMENTS OF A PRACTICAL JOKER

A superintendent of my acquaintance who was in charge of a large plant with a great number of kilns of similar appearance, was blessed with a particularly irascible "boss," who made a tour of the factory regularly once a week. My friend, who was something of a wag, used to lead him upon his arrival into a kiln which was being drawn and to dilate at great length upon the merits of the brick contained therein, pointing out brick of exceptional merit, as he did so. After he had received his share of praise, which he modestly handed over to the burner who accompanied him, he would lead the general manager on a long tour of the other kilns, and then by devious routes back to the first kiln again. This time, however, he would make voluble excuses for the miserable brick and point out examples to illustrate the faults he was describing. The general manager would explode with wrath, and the consternation of the wretched head burner can better be imagined than described!

This same superintendent would occasionally play a similar trick on a municipal inspector who prided himself on his accuracy to the point of being ridiculous, returning to the piles to be inspected, brick already rejected, and then standing by with a sardonic grin on his face while the inspector passed them as all right.

In both cases lack of standards determined with scientific accuracy was responsible. The general manager didn't know what he was looking for or what he ought to praise or to condemn. He had a general idea that the way to run a factory was to reward virtue with praise and to discourage faulty operation with criticism. Alternate pats on the head and spanks somewhere else, may bring up a child in the way he should go, but the modern administration of a large business demands principles considerably more involved.

The inspector hadn't analyzed conditions. He was doing his rejecting on the basis of how the brick looked to him, determined largely by how he felt physically. His rejections at seven a. m. on a cold, wet morning were at least double what they were after dinner when the sun had come out. *If a committee, composed of the representatives of the customer and of the factory, had analyzed conditions of use and of manufacture and, acting in a staff capacity, had decided that cracks just so long, just so deep and just so numerous were permissable; if they had set a rattler, absorption, cross-breaking and shrinkage standard, and had decided just what malformation the use to which the brick were to be put and the conditions of manufacture would allow, the owners of that factory would not have been at the mercy of the state of that inspector's digestion and disposition.*

Kiln Lining Torn Out After the First Burn of a New Kiln. Staff Investigation Would Have Prevented This Loss.

HARASSED SUPERINTENDENT NEEDS STAFF HELP

When an iron-clad optimist persists in his cry of: "Everything is all right," regardless of circumstances, it generally means that he is a much harassed individual nearly at his wits end thru lack of either brains or of opportunity and time to find out just what is the status of affairs and why things are as they are. A number of years ago the writer, while investigating a property, was assured by the superintendent that their kilns produced on an average over eighty-five per cent. first class ware. Reference to his records showed that their average was under sixty. The superintendent didn't know what his percentages were—and he didn't want to know. Even while the individual kiln results were being read off by a clerk, he kept protesting and trumping up excuses and indulging in wild guesses as to why some kilns were total losses. He was afraid to face the facts because he didn't know what was responsible for the bad results; therefore, he lied. He needed the assistance of a staff.

More Than Eleven Hundred Dollars Were Unnecessarily Expended in Constructing This Drier Roof. Competent Counsel Would Have Saved the Company That Amount

Suppose a regiment of German soldiers, charging across No Man's Land, in the face of a British barrage, discovered that their rifles were of the wrong pattern. Suppose, therefore—if your imagination is capable of such a wild flight—that they sat down under the fire of the British sixteen-inch guns, whose projectiles weigh a ton, with machine guns rattling and grenades bursting about them, and tried to figure out a better and more efficient type of rifle. Can you imagine it?

IMPORTANT PROBLEMS THOUGHT OUT IN SECLUSION

Work of that sort is not done in the heat of battle by the line officers of the regiment, but in quiet and seclusion by the officers of the staff. *Yet, the great majority of superintendents are expected to have and to apply all the knowledge, technical and practical, of the mechanical engineer, of the trained electrician, of the ceramic expert, of the mining engineer and of the construction engineer, together with the astuteness of the financier, the sagacity of the politician and the knowledge of labor of the industrial economist, and to run the factory at the same time!*

Any counsel which the superintendent receives from the outside is generally in the nature of legal advice as to how to avoid paying an indemnity to an injured employe, or else comes from an engineer salesman who wishes him to buy a particular sort of equipment.

The writer will never forget the look of surprise on his "boss'" face the first time he asked permission to call in a consulting engineer to assist in the solution of an intricate power plant problem. As it happened, the fifty dollars so spent saved the purchase of a three thousand dollar engine, but it was some time before some members of the company could quite get over the "sneaking" feeling that their superintendent was a "lemon" "because he didn't know everything by instinct."

ORGANIZING THE FACTORY STAFF

Aside from calling upon expert assistance from outside the company, much is gained by the application of the staff principle within the organization. The development and success of a factory staff, however, depends as much upon its personnel and upon the personnel of the management as it does upon the method of organization. Each case must be studied separately, of course, and an organization devised to meet the particular requirements of each factory.

In addition, the principles must be kept firmly in mind that all members of the staff are of equal rank when acting in a staff capacity and that the chief of staff must act almost wholly in a judicial capacity. *These laws must be observed whether the staff consists of three illiterate firemen consulting behind the kiln as to what was the matter with the last burn, with the shift "boss" acting as chief-of-staff and deciding which is right, or whether the staff consists of a committee of high-priced executives and salesmanagers, called together from half the world, discussing over an elaborate banquet ways and means of outdistancing competitors, and guided by the tact and diplomacy of one of our multi-millionaire captains of industry.*

A staff meeting must be an absolute democracy and every member must have his right to be heard. The chief-of-staff may render the final decision, but this he must not do until all have been heard. He must display no favoritism and, if he be an important officer of the company, he must take special pains to draw out each member and to subordinate his own personality to the occasion. Otherwise, the complete interchange of ideas, which makes staff investigation of industrial problems so important, cannot be secured.*

WITH STAFF "MY IDEA" GIVES WAY TO "OUR IDEA"

As has been stated, the particular sort of staff adaptable to a plant must be figured out on the ground. The principle in all cases is the same, that of furnishing the time and opportunity, under the most favorable circumstances, for an investigation of the technical, mechanical and operating problems which continually confront the "line" officials of a factory. With a properly organized staff, the iron-clad optimist automatically disappears. The superintendent can answer his superiors with a concise statement of facts and figures instead

Staff Investigation Resulted in Later Eliminating This Loss By Changing the Method of Hacking and the System of Pulling the Drier of with evasions. Opinion gives way to knowledge and the decision in the controversy as to ways and means of operation, goes to the man with the facts, instead of the man with the loudest voice. Shortly, controversy merges into analytical investigation, to which each member of the committee adds his knowledge modestly and fully. "My idea"—the bane of the factory—is supplanted by "our idea." Jealousy gives way to co-operation among the members of the organization and, as a result, the final idea adopted has been shaped and tested until it represents the best the brains of the company can produce.

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*Staff organization has been covered in greater detail in the October, 1915, number of the "Engineering Magazine," and in another article which will appear in an early issue of the same magazine.

The results secured thru staff investigation are far reaching and represent considerable economies. One superintendent worked out mechanical and handling devices which enabled him with a single sewer-pipe press to turn out 2,666 feet of three-inch, 2,832 feet of four-inch and 1,684 feet of six-inch pipe per hour. Another saved over $1,500 in one year by conducting an investigation into the belting best adapted to his needs and $1,100 more by running a series of experiments to determine the most economical oil to use. At a paving-brick factory the rattler loss was decreased from twenty to sixteen per cent. by means of staff investigation. At another plant the burning time was cut nearly in half.

APPLIES TO CONSTRUCTION AS WELL AS OPERATION

Staff investigation is quite as important in constructing the factory as in its operation. The first photograph shows the fire-brick torn from the wall and flash-wall of a kiln after the first burn. Staff investigation would have counseled the use of a different sort of brick and several thousand dollars in repairs would have been saved. The second photograph illustrates the waste of about $1,100 in the construction of a drier roof. Competent counsel would have saved the company this expenditure. These, however, are only minor examples.

A Drier Badly in Need of Expert Analysis. Improper Design and the Lack of Regulation Were Sending From Ten to Twenty Per Cent. of the Brick Back to the Machine

Every clayworker is familiar with cases of companies being formed and factories erected only to find that the clay deposit was unsuitable. The writer knew of one $175,000 factory built on no greater evidence than the chemical analyses of two lumps of clay—one stolen from a factory fifty miles distant and another taken from an out-crop on the promoter's land. These analyses showed that both samples contained silica, alumina, lime and iron—especially iron—and the mere fact that the promoter's sample had twice as much iron as the sample from the going concern did not daunt the subscribers to the stock in the least. "There was only about ten per cent. of iron anyway. What difference could a little thing like that make?" *They have since found out!*

About five years ago, another factory was erected at a cost of $750,000. It was an elaborate affair equipped with an enormous continuous kiln, company houses and so forth. After the money was spent, it was discovered that only about six feet of their shale bank was suitable for the manufacture of paving-brick and that that dipped into a hill of solid rock at an angle of forty-five degrees. *They shut down and from the last reports were seeking an honest junk dealer.* Examples could be multiplied indefinitely, but that is unnecessary. Every clayworker knows of several in his own neighborhood.

IMPERIAL BRICK COMPANY
STANDARD INSTRUCTION

No.__________

Subject__________ Date__________

To

Signed__________

NOTE—If any point in above is not clear, take it up with Mr.__________ at earliest opportunity.

Form of Standard Instruction. Such an Order Issued to Any Department is Filed by the Recipient and Remains in Force Until Countermanded in Writing

HOW TO AVOID COSTLY MISTAKES

If you are to avoid costly mistakes, the procedure is this: Organize, from the president down, in such a way that you first bring to bear upon any problem under the most favorable circumstances, all the brains in your company. Turn anyone who insists on playing "Big Injun" or "Great I Am" over to the sergeant-at-arms. Face the situation honestly and, if you need help, send for it. The decision then is made in the light of the best knowledge available. Mistakes will be reduced to a minimum and the ingenuity which will develop from unexpected sources will surprise you.

WRITTEN STANDARDS AND INSTRUCTIONS

This is a matter which has been mentioned before in connection with the burning and the analytical time study, and which is exceedingly important. Most executives will recall long conferences which resulted in no action, or in good resolutions only. The company's time was spent but the company received no adequate return. Even where a definite decision is reached, the neglect to impart this decision to the members of the organization who are to carry out the work, will sometimes render the conference a waste of time. Again, when this step has been properly taken, lack of attention by those in authority, lack of follow up or lack of clarity in imparting the instructions to subordinates will nullify the effect of decisions which would perhaps have saved the company thousands of dollars.

Similarly, in loosely or improperly organized staff investigation, steps in the experiment which, if reduced to writing, would have saved others uselessly traversing the same ground, are forgotten, and the time of later investigators is wasted. When a new foreman is hired in any department, he must make most of the mistakes of his predecessor before he is sure that he is running his crew to the best advantage. Factories become training grounds for superintendents and the stockholders pay the bills. When a man dies or departs to a rival concern, he takes with him his experience, or rather the experience which is by right the company's, since the company paid dearly for it in spoiled ware and in numerous other ways, leaving the company holding the sack.

The remedy is, of course, the reduction of all decisions to writing and the issuance of all instructions in writing. In this way, once a best method of meeting a given set of conditions or of performing a certain piece of work is determined, it becomes a permanent record of the company. The expense of solving the problem does not have to be incurred more than once. Costly mistakes are not repeated and the concern ceases to be the personal experimental school of executives. Furthermore, the chance of misunderstanding orders is practically eliminated. Orders are considered more carefully before they are issued and responsibility is fixed. Employes supplied with orders, carefully considered in detail and clearly expressed in writing, do not waste time hunting foremen, and materials in experiments. The economies effected are out of all proportion to the trouble and expense incurred as any clayworker will find who uses the system intelligently and consistently.

INTENSIVE LABOR DEVELOPMENT

The general run of factories hire, or refuse to hire, whatever turns up at seven o'clock in the morning looking for a job. The action depends usually upon whether the foremen feel they are likely to need a man sometime during the day. Suppose you bought your clay in the same way, depending upon some farmer, whom you did not know, driving up from some part of the country with which you were unfamiliar, with a wagon load, when the spirit moved him, or when he needed the money. If you depended upon taking what chance brought you and then mixed it all together without regard to what it was fit for, how long would you stay in business? *And yet, that is exactly what you are doing with your labor, which costs you from eight to twelve times as much as your clay.*

Labor shortage, strikes, damage to machinery, buildings and equipment, damage suits, wasted material, spoiled ware and infinite inefficiency are traceable directly to the prevailing loose methods of purchasing labor.

A few of the more progressive have realized this. H. R. Straight of Iowa, a paving-brick manufacturer of Illinois, and a few others of like foresight, have made a special study of the causes underlying labor shortage. Mr. Straight has set forth his premium plan and the results obtained in "Brick and Clay Record."* The paving-brick manufacturer told the writer recently that he had experienced no labor shortage during the past summer, in spite of the fact that most brick manufacturers of the district were paying two hundred miles railroad fare to prospective employes, were giving them free transportation from their homes on motor trucks and were spending hundreds of dollars in newspaper advertising.

STOP LOSS BY CAREFUL HIRING

Strikes are often caused by lack of care in the selection of employes, as every clayworker knows. Lawyers will tell you that there is a regular profession which grows fat on the proceeds of damage suits won from corporations—men and women who go from place to place, secure employment and then pull off a carefully staged accident which results in a "back injury" or some other complaint which will excite the sympathy of a jury, but which is difficult to diagnose and impossible to disprove.

The cost in damaged machinery, wasted material and spoiled ware due to breaking in a new employe, averages from forty to a hundred and twenty-five dollars per man, depending upon his aptitude and his opportunity. If you don't believe this, stop and think of the mistakes you made yourself when you began work. One man who considered such a statement ridiculous, finally admitted that during his first week of employment in a large factory he cost his employers more than fifteen hundred dollars by turning an oil cock the wrong way and dumping a large tank of oil in the river. *It doesn't take a very large mistake on the part of a green fireman to cost the firm a hundred dollars in spoiled product or in wasted coal, and a two hundred pound "hunky," accustomed to handling pig iron, can spoil a whole lot of sewer-pipe or terra cotta in nine hours!*

FIGURE SAVING FROM SCIENTIFIC SELECTION

If you employ two hundred men and, in order to maintain that force, are hiring six hundred men each year (a labor turnover of three hundred per cent. is by no means unusual), it is costing you about thirty thousand dollars a year.

If, by selecting your employes scientifically, studying the local labor market, paying a bonus for regular attendance, and by doing as many of the things which have been generally classed together under the head of "welfare work" as common sense permits, you could reduce this turnover to one hundred per cent., you would save at least twenty thousand dollars a year. *It is worth going after. Figure it out in your own plant and see if it isn't.*

You may not be able to afford an organized employment department, altho, if you figure out exactly how much time your superintendent, foremen and office force are spending in useless and rambling interviews each day, you will find that an amount of time which will come surprisingly near to that of one man, is being so spent every day in the year. Take into consideration the fact that interviewing prospective employes is a job for a trained man, and that not one foreman in twenty knows how to examine a workman, and you will find that you don't need to have more than two or three hundred men to be able to afford an employment department.

WELFARE WORK HELPS SOLVE THE LABOR PROBLEM

Organized "Safety First," company doctors and mutual benefit and hospital associations are the worst foe of the ambulance-chasing lawyer, and one adverse verdict by a sympathetic jury will cost more than all the expense, time and trouble of the organization end of maintenance for many years.

Profit sharing is looked upon as the bulwark against social revolution and the government ownership of corporations, as well as a promoter of efficiency, by taking the workers into the firm and, as such, is being widely adopted. Welfare work also covers old age pensions, which are often more than self supporting since they encourage long employment with one company, discourage strikes and prevent the inefficiencies and accidents which are the result of kind hearted employers retaining old employes in jobs for which they are too feeble. Under this head come also all the movements for ameliorating the condition of the working man, such as better housing, building and loan associations, garden making contests, company athletic teams, and so forth, which tend to keep the employes contented and in good health.

The labor problem has been a serious one during the past year. Next year the shortage will be even greater if the war continues. Every manufacturer should give the matter serious consideration, should study his local conditions and should take steps to meet a state of affairs which is likely to affect his business vitally.

⁂

More than a million brick have been made and burned by the boy members of the George Junior Republic at Chino, Cal. These brick are for new buildings of the institution. There are about four hundred boys in the colony and among the trades taught is that of brickmaking.

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*Page 1119, June 20th, 1916, Issue.

LIVE TOPICS SCHEDULED *for* ANNUAL INSTITUTE MEETING

Cleveland Selected by Paving-brick Makers for Next Gathering on December 5th, and 6th, Which Will Mark Beginning of New Program Policy

AT A SPECIAL MEETING of the Institute of Paving Brick Manufacturers, held at the Hotel Statler, Cleveland, Ohio, on October 21st, the unanimous opinion of those present was voiced to the effect that two meetings a year, with a larger and more complete program, would be more interesting and successful than the quarterly meetings which the Institute has held in the past. It was decided to inaugurate the new policy immediately and, in accordance therewith, December 5th and 6th were set as the dates upon which the Institute would next gather, in annual session.

At the forthcoming meeting, which will be held at the Statler Hotel, Cleveland, will be discussed a program replete with information valuable to the operating departments of the industry.

SPEAKERS PREPARING VALUABLE PAPERS

Such subjects as "The Use of Powdered Coal," "Producer Gas in Burning Brick," "Equipment and Efficiency," "Labor" and "The Development and Application of a Bonus System" are of outstanding worth and give promise of a lively discussion. The men to whom these subjects have been assigned have each given serious consideration to the particular one upon which he is to speak and many points of value to the industry will be brought out.

The meeting will close with a dinner on the evening of the 6th, for which an interesting program is being prepared. The details of the entire meeting, which is to be spread over two days, are as follows:

December 5th, 10 A. M.—Meeting of the program committee.
December 5th, 3 P. M.—Meeting of the Institute.
December 6th, 10 A. M.—Institute meeting.
December 6th, 6:30 P. M.—Dinner.

The meeting of the Institute scheduled for the morning of the 6th will be continued in the afternoon, if necessary, or, if time is available, there will be an inspection trip of interest to all members.

TOPICS AND THOSE WHO WILL PRESENT THEM

The following papers comprise the program:

"The Use of Powdered Coal," by A. A. Holbeck.

"Producer Gas in Burning Brick," by John T. Underwood.

"Equipment and Efficiency," by F. R. Kanengeiser, general superintendent of the Bessemer Limestone Company, Youngstown, Ohio.

A paper by Wm. D. G. Orr of the Purington Paving Brick Company, Galesburg, Illinois, on the subject of "Labor."

"The Development and Application of a Bonus System," by Spencer M. Duty of the Medal Paving Brick Company, Cleveland, Ohio.

The caliber of the subjects and speakers should merit the widest interest and a large attendance.

An important meeting of the Cost Committee of the Institute will be called prior to the meeting, to prepare a report to be presented at that time.

The president has instructed the committee on the constitution and by-laws of the Institute to bring before the members at the next meeting certain revised sections which are to be voted upon at that time. These are as follows:

CONSTITUTION

Article V.

The Institute shall meet annually during the month of December at a place that shall be convenient to the entire membership. In addition to the annual meeting, there shall be held one other regular meeting each year, at such time and place as may be directed by the board of directors.

BY-LAWS

Article I.

Section 5. The board shall meet at the same time and place as the semi-annual meetings of the Institute. Special meetings may be ordered by the president upon ten days' notice, but only such things may be considered at such meetings as are stated in the notice.

Article V.

The program committee shall consider and submit to the board a program at each meeting to cover the following meeting, such program to include the time and place of meeting. The program committee shall make such arrangements as may be necessary for the holding of the meetings.

Article VII.

Section 2. Following adjournment of any regular meeting of the Institute, a program including topics of interest to the Institute may be presented.

Present section No. 2 to follow the above section as section No. 3.

* * *

Louisville Company to Operate Coal Mine

A report of booming business was recently made by the Hillenbrand Brick Manufacturing Company, Louisville, Ky., to "Brick and Clay Record's" representative. The company has orders for half a million common-brick on hand, besides probably a million which will be delivered to a new foundry concern that is building a large plant in the city. This is aside from face-brick for which the company has orders on its books to the extent of 100,000 or more. The coal yard annex of the concern is doing very well indeed at this time, the Citizens' company, of which Oscar Hillenbrand is secretary-treasurer, having been protected by purchase contracts on which deliveries are regularly made to it. The shortage and a much advanced price for coal will make this business profitable the coming winter. The concern is now making arrangements to lease a mine of its own and market the entire output, a West Virginia mine, from which a desirable coal is taken, being selected.

The HOLLOW-WARE MACHINE *which* DOES *not* DEPRECIATE

An Ideal Piece of Clay Plant Equipment Described by One Who Has Learned from Experience the Advantages of Buying Well

By Ernest W. Knapp

Superintendent, Sun Brick Company, Ltd., Toronto, Ont.

¶*EDITOR'S NOTE: In submitting the following article to us, Mr. Knapp, in a very interesting letter, says:*

¶*"When a man puts in many weary nights on useless work because he is up against a crude method of doing things that have not kept up in the march of industrial progress, his mind should begin to devise a way out."*

¶*We are glad for those who are able to get away from the plant's routine and do some constructive thinking, and we are particularly joyful for those who are willing to give the industry the benefit of their thought, as is Mr. Knapp, who promises us further contributions along this line.*

¶*May his tribe increase!*

DURING THESE TIMES, when labor problems have made scientific management and diplomatic "bossing" such keen necessities, employes are quick to pick out and discuss all of the weak points and troublesome features in every piece of equipment about the clay plant. Work that was done willingly by hand a year ago, becomes too hard for present-day conditions and, in order that it may be done, means are being rapidly devised to do it by machinery. This trend is a good thing for the industry, leading to lower costs and bigger profits. Above all, it makes us realize how crude some of our manufacturing methods are and that radical changes are in order to bring the clayworking industry up to a level with other fields wherein is industrial perfection.

MOLDING MACHINE IS HEART OF THE CLAY PLANT

There is no piece of equipment on the clay plant of greater importance than the machine that makes the ware. It sets the pace for all departments. Its daily task embraces what we term the plant's capacity, and this depends largely upon the efficiency and state of repair or condition of that machine. To keep the average molding machine operating every working day in the year over any period of years, is well nigh impossible. Periodically it must be completely torn to pieces and new gearing, bearings, linings, and so forth, installed. This is generally a big job, consuming considerable time, all of which means that the biggest factor in the plant's production is idle for a period of days.

The removal of shafting from a large machine, chipping out the bearings and making pours of one hundred pounds of babbitt per bearing, is not a piece of work that can be rushed thru in a day. It involves a lot of heavy lifting, the undoing of practically every nut and bolt in the machine and considerable maneuvering with huge, hot ladles of babbitt. There is really no reason why this should be necessary, except that it is the usual thing, taken as a matter of course and precedent. Clay plants that operate during the warm weather and expect to close down for repairs during the coldest months are becoming more and more a thing of the past. *Why not have machines that can be overhauled at any time during the operating period, that will last thru years of constant service, that are capable of being kept continually "tuned up" to that degree of perfection demanded by top notch capacity every working day in the year without involving a large amount of night and Sunday work on the part of the master mechanic and the factory foreman, to say nothing of a periodically high repair cost?*

APPLYING AUTOMOBILE STANDARDS IN BUYING

A machine so designed that all wearing parts are easily replaced from time to time, in which all slack motion, "chatter" and pounding of gears may be taken up and eliminated whenever necessary, that would reduce repair costs, lubrication expense and general depreciation to a minimum, would, of course, cost more money than we are in the habit of paying for the machines which we use. We are accustomed to buying so much cast iron and steel by the pound from the lowest bidder and it is not the fault so much of the makers of machinery that this state of affairs exists, as it is the fault of their customers in not demanding and expecting to pay for the class of material they would expect to find in a touring car or an electric motor, or in the modern automatic screw machines and lathes used in up-to-date machine shops. We are willing to pay five thousand dollars for a first class motor truck to haul our brick and tile to the market, but we would hold up our hands in horror if asked to pay as much for a hollow-ware machine built to turn out from twenty-five to thirty pieces of ware a minute. The high-priced motor truck handles as much in ten hours, on good days with a short haul, as the hollow-ware machine turns out in an hour. *Why not put enough money into the future of that machine so that we will know that those twenty-five or thirty blocks will be forthcoming every minute of every hour of every day in the year for at least five years before we make any extensive repairs?*

WHY IT IS HARD TO KEEP GOOD MECHANICS

First-class factory foremen and master mechanics are hard to find and difficult to keep. They cannot be classed with the average clay plant worker who is only interested in the number of hours he is compelled to work and the size of his pay check. A bonus system does not give them much encouragement when they have to face the drudgery of endless night and Sunday repairing, which they know can be avoided. They need to work with first-class tools and the best materials to get results compatible with their ability and the wages they do or should receive. As a rule, foremen and mechanics are conscientious in their work—they do not like and will not stand slave-driving and boss nagging. They thrive on enthusiasm, keen interest in getting results and a pride in the production record and satisfactory operation of the plant. They will sulk and permit a machine which they consider all wrong to go to pieces without caring or trying to keep it in shape or in any other way preventing its breaking down. But give them equipment which, to their practical minds, is well designed, convenient to operate and repair, that shows good workmanship and contains good material, and they will gladly do all in their power to keep it just so—"tuned up" to perfection at all times. *They take a pride in it.*

When a man of this calibre notices that his dies are not behaving properly, that the bar persists in tearing up and spoiling the ware, due to the fact that the main shaft bearings are wearing on one side so as to throw the auger out of position in the barrel of his machine and that his thrust bearing is beginning to heat up more than is possible thru any trouble with lubrication, and is finding a new seat for itself, he realizes that, unless that main shaft is taken out and rebabbitted, trouble is bound to come in the very near future. He is then confronted with the task of getting in chains, hoists, crow bars, platforms of blocks and planks and, with a gang of men, tearing the machine to pieces to get at the trouble and correct it. It is a long, hard job and he dreads it. But the machine must continue to operate every day to top-notch capacity. So he brings down a lunch and, after doing a hard day's work, he labors all night and most of his Sunday to "do the trick" in addition to other jobs that are absolutely necessary before he is sure of a good run on Monday. *And the pitiful part of it is that this is not a temporary condition of affairs—not that once-in-a-while job when everyone is ready to strain a point—but the rest of his factory is equipped with the same style of machinery, shafting, belting, and so forth, which we usually find on clay plants. He is, therefore, up against that sort of thing all of the time.*

As a general rule, unless he is one man in a thousand, he will soon lose his enthusiasm. Gone is his pride and "pep" and he just seems to fall down on the job until he resigns or is requested to do so. If he happens to be that one man in a thousand that can stand the "gaff," he does not remain a factory foreman very long, but tries his hand at operating a plant for someone else. *So we lose him anyway.* It is obviously poor business judgment to discourage and create discontent among employes. Any tool or piece of equipment that can create contentment, enthusiasm and an interest in successful operation, becomes a profitable investment—*an absolute necessity.*

BETTER GEARS NEEDED

The same short-lived propensities found in bearings apply to the gearing. Even cut steel gears wear away at a marvelous rate, the machine begins to get noisy and we hear it "chattering" and pounding. Perhaps the gears are wearing evenly and, as we know that the steel teeth will hold and wear down to a razor edge, we get all the service possible out of them. In the meantime, we are pounding our bearings to pieces, crystallizing the shafting—especially the intermediate shaft which will break at some unexpected time—and changing the pleasing hum of the machine that we are proud of to the rattle-trap noise that is both distracting and irritating to the nerves of all in the factory.

If these gears were adjustable; if they were made to wear longer and if we had some means of renewing the worn out bearings other than the laborious and tedious job of tearing down, building up and making heavy and difficult capacities, better contentment and lower repair bills. *Can these difficulties be overcome at not too great an expense?* Can a lot of other troublesome features about our machines be eliminated, or must we still wait until the cold months of winter, tear them all to pieces and build up new again? *It can be done and is being done in the equipment and machinery of almost every other industrial field at the present time.*

THE IDEAL HOLLOW-WARE MACHINE

We may take, for example, the ordinary, heavy duty hollow-ware machine. We call it a hollow-ware machine because it is the type most generally used in manufacturing building tile. These machines are usually of the straight barreled type, with renewable linings and continuous augers with force feed attachment.

The writer once had an experience with a new machine of this type where the shaft did not center the barrel linings. It was necessary to use a blacksmith's cold set and a sledge to chip away one side of the lining so as to wedge it in the barrel with the shaft properly centered. To overcome a difficulty like this, we would advise linings cast from a hard manganese alloy, with the outside diameter of the lining one-inch less than the inside diameter of the barrel of the machine. This lining, properly ribbed for strength, can be held in position by nine large set screws with lock nuts, located so as to form three sets of screws, each set meeting the lining at three points of contact on its diameter. This would permit the absolute centering of the shaft at all times and facilitate quick and easy removal of the lining when renewed. A hollow-ware machine always tends to wear the linings more on one side and to thrust the shaft and auger against the opposite side, so that, in the course of a few months, the flow of all dies, especially the large ones, is affected by a retardation in the section of most wear on the lining and a lack of proper compression in that particular spot. This causes the warping of the ware, loss of capacity thru tear-ups in the bar, throws the pugger off his temper and increases the work on the force feed, involving frequent renewals and a high repair cost on the knives. With the possibility of adjusting the lining as this tendency occurs, this source of trouble would be eliminated to a great extent.

SCIENTIFICALLY CONSTRUCTED BEARINGS

For the type of bearing to be used in the ideal hollow-ware machine we can take a "tip" from the manufacturer of electric motors. He uses a babbitt bearing that contains real, first-class babbitt. It is removable from the frame of the motor and, when babbitted, is taken into the machine shop, poured on a wooden mandril and machined to the calipered size of the shaft. These bearings last a long time before renewal. They carry far heavier loads than the bearings in our ordinary clayworking machines, they are contained in tanks of oil with rings to transmit a constant wash of lubrication thru the bearings, removing all particles of dirt or cuttings, and do not allow any of it to run away on the floor. If these bearings are filled with oil, they will give excellent service for more than a month without further attention.

If we had a bearing of this type on the two main points of the auger shaft, three on the intermediate and three on the drive shaft of our machine, so constructed as to consist of two halves of a malleable casting faced with ⅛-in. of babbitt, to be contained securely in a cast iron tank capable of holding one pint of oil with provision for ring oilers, we would have a long-lived bearing over which there would be a constant flood of lubrication without waste of oil and in which it would be utterly impossible for any dust, grit or cutting materials to exist. Such a bearing would not require constant oiling by hand, nor would the machine upon which it was placed consume one-tenth as much oil as is generally used with oil cups, squirt can or pump. This bearing would be held in position by large set screws at three points of suspension at each end, enabling the adjustment of all gears to a nicety to take up wear from time to time and to keep the shafting in its true position at all times. When the bearing had worn sufficiently to warrant re-babbitting, it could be quickly and easily removed from the shaft—being in two pieces—taken into the shop, the babbitt chipped out in a vice, poured on a wooden mandril, machined and polished to a perfect running fit to the calipered size of the shaft. By carrying a fitted spare set of the size bearing used on each different size of shaft, the factory foreman could exchange them in a few moments and be operating the machine while the mechanics were pouring and machining the bearing removed.

For the thrust bearing we would advocate a roller bearing running in a tank of oil. Being located at the end of the shaft, it could be removed and a new bearing substituted without much trouble and without lifting out the shafting. Roller bearings are not advocated, except in this particular place, because they would necessitate the removal of the gears and shafting for renewal.

IMPROVEMENTS POSSIBLE IN MAIN SHAFT

The main shafts of auger machines are generally forged to a hexagonal shape thru the barrel of the machine where the augers slip on. In machines of this type in many cases no attempt is made to machine off the humps and rough spots resulting from the steam hammer marks, so we are compelled to core our auger sections large enough to slip on and off easily. This has been a source of great trouble at times. It puts a strain on the cast piece which sometimes causes it to crack and smash up the machine. If the shafts were machined a little after coming from the hammer, so that the augers could fit better, we would eliminate a source of worry and trouble to many a factory foreman.

In locating the first main shaft bearing in an auger machine or pugmill that is directly behind the auger or knife sections, enough space should be allowed between the bearing and the clay chamber so that the plastic, gritty stuff would have a chance to get somewhere besides into the bearing, cutting the babbitt away and compelling us to babbitt a little oftener than necessary. If an inch of space was allowed between the chamber wall and a washer placed on the shaft against the end of the bearing, it would remedy this trouble.

FORCE FEED BEARINGS AND KNIVES

Force feed bearings are sometimes put right up against the clay in the hopper to obtain short spans for the shafting on which the knives are placed. Generally, they run on a mixture of clay and oil—an excellent cutting compound. The bearings are easily babbitted and would not be a source of much difficulty if provision was made to keep the clay out of them. They should be made sufficiently long to allow the placing of a chamber at the clay end to be kept packed with oiled felt.

Force feed knives should be made of forged steel. Electric and crucible cast steels are unreliable for such heavy service. Flaws are hard to detect and a flaw means a smash-up and a shut-down. The blades of these knives should be two inches wide, with provision for the attachment of two by three-eighths inch vanadium spring steel wearing shoes.

MORE SUGGESTIONS FOR THE IMPROVEMENT OF GEARS

We, in the clayworking industry, point with pride to our great advancement to cut steel gears. We no longer tolerate the rough cast iron "stuff" that quickly wears away and loses its teeth at unforeseen moments. But even cut gears have a way of wearing out with most extraordinary rapidity—too fast, in fact, to warrant their use as opposed to cast gears of a hard alloy.

The writer once saw a small, slender-toothed affair that goes into the transmission of a well known motor truck. It was a ridiculously fragile looking object and yet it carried as much of a load as the big bull gear that we lift up to our pugmill with a block and tackle, and was subjected to jolts and jars that would make the bull gear look sick. The salesman invited the writer to put that gear in a vise and try it out with a sledge hammer. He looked quite confident and serious about it, because he knew the material was there. *How many gears in the clayworking industry would stand very much messing up with a sledge?* Yet, why cannot the gears in a brick or tile machine be made of high-grade material, put into a hardening furnace or bath and be tempered to that degree of hardness and toughness which makes the automobile gear run so long and wear so well? We believe that it is perfectly possible if the clay plant owner will insist on buying well.

Gears are often made with an extension on one side of the hub to hold them from shifting along the shaft. When properly fitted and keyed, this is entirely unnecessary, or the same purpose may be served by loose collars machined to fit between the bearings and the gear. Often by reversing two meshing gears when half their stock is worn away, a practically new set is obtained. Many times the extension hubs make this impossible and prevent the use of a high-grade material.

It is not sufficient to merely keep the dust away from gears and bearings by protective metal covers. They should revolve in tanks of oil, being constantly flooded and washed with machine oil, so as to clean away every particle of cutting matter or grit, with a lubricating film over the surface of the metal at all points of contact. Grease, heavy enough to stay on a gear without flying off, does not flow sufficiently to lubricate effectively and merely collects dust to form a cutting compound. Thin machine oil will fly off the fast running gears but, when contained within oil-tight tanks, none is wasted.

Gears so treated would last five years and perhaps longer, giving constant and efficient service, taking into consideration the possibility of reversing them after getting half the wear on one side of the teeth.

A FEW CHANGES TO BETTER THE CLUTCH

For the clutch, the internal, expanding, shoe-on-pulley type is very practical. Its wearing parts are easily accessible at all times, repairs can be made as well as spare parts, right on the plant, and worn parts replaced from time to time. The elimination of cast iron parts and replacing with forged steel, greater accuracy in workmanship and careful machining of wearing parts, would make this old type of clutch hard to beat.

RIGHT TYPE OF BOLT NECESSARY

On any machine in a clay plant the use of bolts fitted with castle nuts and cotter pins is advocated. Giving the factory foreman a call-down periodically for not constantly tightening up nuts on a machine is not an effective remedy. Give him a chance so that when he does a good job once, it is done.

ECONOMY IN PROPER DIE AND DOOR FRONT

The hinged door front, with the cork-in-the-bottle type of die, held in place by the pressure of clay, is a handy and effective means of fastening on a die. It simply requires the unfastening of one bolt to change a die, which means a saving of time and money in this operation on a machine that turns out thirty blocks a minute representing six cents a piece.

FOUNDATION FRAME-WORK CAST IN ONE PIECE

The foundation frame-work of the machine should be cast en bloc. Fastening pedestals and legs of heavy castings to a couple of light channels with one or two bolts per leg does not make a rigid or satisfactory foundation to keep bearings lined up or permit a machine to run without excess vibration and straining at all points. In case the machine be motor-driven as an independent unit, the motor should be secured to a separate foundation so that no machine vibration is transmitted to the motor and vice versa.

* * *

Sewer-pipe in the Role of a Rabbit Trap

"Uncle Sam's" Reclamation Service has found a new use for sewer-pipe. In describing a trap for rabbits in a recent bulletin, the Service says:

"An inexpensive and permanent sewer-pipe trap for cottontail rabbits, which has proved very effective in Kansas, is described below. To make the trap proceed as follows:

"Set a twelve by six-inch "T" sewer-pipe, with the long end downward, and bury it so that the six-inch opening at the side is below the surface of the ground. Connect two lengths of six-inch sewer pipe horizontally with the side opening. Second-grade or even broken tile will do. Cover the joints with soil, so as to exclude light. Provide a tight removable cover, such as an old harrow disk, for the top of the large tile. The projecting end of the small tile is then surrounded with rocks, brush, or wood, so as to make the hole look inviting to rabbits and encourage them to frequent the den. Rabbits, of course, are free to go in or out of these dens, which should be constructed in promising spots on the farm and in the orchard. A trained dog will locate inhabited dens. The outlet is closed with a disk of wood on a stake, or the dog guards the opening. The cover is lifted and the rabbits captured by hand.

"These traps are especially suitable for open lands and prairies where rabbits cannot find natural hiding places. They are permanent and cost nothing for repairs from year to year. If it is desired to poison rabbits the baits may be placed inside these traps, out of the way of domestic animals or birds. This trap also furnishes an excellent means of obtaining rabbits for the table or even for market."

COST ACCOUNTING *for the* CLAY PLANT

Tables Number Twelve, Thirteen and Fourteen, Covering "Stable and Teams," "Superintendence" and "Selling" Included in This Installment

By A. J. Huac

CONTINUING THE PRESENTATION of three cost tables every issue, the twelfth, thirteenth and fourteenth are given below as a part of the uniform system that is unfolding itself in these columns as the weeks go by. For the benefit of any reader who for any reason may not have had the opportunity of reading the previous installments of this system and, therefore, does not understand the meaning of the various signs used in the tables, attention is called to the fact that this information may be obtained from the August 15th issue.

STABLE AND TEAMS

The work of this department is to keep all teaming costs so that a rate per hour for the work done by each horse during the month can be determined.

As there is very little repair labor, we have added it in with the other labor. Food, of course, is charged to supplies. The investment includes the value of horses, mules, wagons, carts, harness and barn.

Factories using one or more horses at the same work continually can dispense with this table and charge the

TABLE NO. 12—STABLE AND TEAMS

Line No.	Post From		Post To	
1	T19-XXVII	Labor or Equivalent, including Repair Labor		
2	T20-XII	Repairs, Tools and Supplies		
3	T22-XIII	Interest, Taxes, Insurance and Depreciation		
4	T13-31	Superintendence		
5	(1+2+3+4)	TOTAL COST		
6	See below	Total Hours Worked by Horses		
7	(5 ÷ 6)	AVERAGE COST EACH HORSE PER HOUR	T19-34a	

Post Line No. 6 from total of all time-sheets (Table No. 18) in use for horses.

9 C 30-0
3-

expenses direct to the department in which the work is done. This table, however, entails so little work that, on general principles, it is far better to use it.

If the work of the horses can be charged directly to the departments, then the value of the horses can be charged as part of the equipment of that department and the value of the barn and so forth, charged to superintendence.

SUPERINTENDENCE

The work of this department is to oversee the work of all the factory departments, represented by the twelve previous tables. The liability insurance and a proportion of the administration expense are charged here.

The total expense of superintendence is divided into each department according to the labor pay roll of that department. Of course, in some cases this may not be accurate, but at the best, the division must be an arbitrary one, and this seems to be the best way of arriving at a conclusion.

SELLING

The work of this department is to dispose of the manufactured ware to the customers.

We start with the gross sales and, by deducting all proper amounts, arrive at total sales f. o. b. factory. This is really the figure which a plant receives for its ware. We then add up all selling costs, including a proportion of administration expenses, and the total cost of loading ware from yard.

TABLE NO 13—SUPERINTENDENCE

Line No.	Post From		Post To	
1	T20-XXI	Salaries		
2	T20-XXV	Office, Traveling and General Expenses		
3	T22-XXVII	Liability Insurance		
4	T15-14	Administration		
5	(1 to 4)	TOTAL SUPERINTENDENCE	(36)	
		Divide as follows:		
6	T19-33	Total Pay Roll Including Repairs and Betterment		
7	(5 ÷ 6)	Percentage Total Pay Roll to Total Superintendence		
8	T19-32-I + XVI	Digging—Pay Roll Including Repairs		
9	(7 × 8)	Digging—Percentage of Superintendence	T1-12	
10	T19-32-II + XVII	Power—Pay Roll Including Repairs		
11	(7 × 10)	Power—Percentage of Superintendence	T2-8	
12	T19-32-III + XVIII	Preparing—Pay Roll Including Repairs		
13	(7 × 12)	Preparing—Percentage of Superintendence	T3-9	
14	T19-32-IV to VIII	Making—Pay Roll Including Repairs		
15	(7 × 14)	Making—Percentage of Superintendence	T4-9	
16	T19-32-IX + XX	Drying—Pay Roll Including Repairs		
17	(7 × 16)	Drying—Percentage of Superintendence	T5-9	
18	T19-32-X + XXI	Setting—Pay Roll Including Repairs		
19	(7 × 18)	Setting—Percentage of Superintendence	T6-8	
20	T19-32-XI + XXII	Burning—Pay Roll Including Repairs		
21	(7 × 20)	Burning—Percentage of Superintendence	T7-9	
22	T19-32-XII + XXIII	Emptying—Pay Roll Including Repairs		
23	(7 × 22)	Emptying—Percentage of Superintendence	T8-8	
24	T19-32-XIII + XXIV	Loading—Pay Roll Including Repairs		
25	(7 × 24)	Loading—Percentage of Superintendence	T9-8	
26	T19-32-XIV + XXV	General Labor—Pay Roll Including Repairs		
27	(7 × 26)	General Labor—Percentage of Superintendence	T10-7	
28	T19-32-XV + XXVI	Stripping—Pay Roll Including Repairs		
29	(7 × 28)	Stripping—Percentage of Superintendence	T11-13	
30	T19-32-XXVII	Stable and Teams—Pay Roll and Repairs		
31	(7 × 30)	Stable—Percentage of Superintendence	T12-4	
32	T19-32-XXVIII	Unloading and Hauling Coal—Pay Roll		
33	(7 × 32)	Unloading, etc.—Percentage of Superintendence	T20-96-XVI	
34	T19-32-XXIX	Betterment—Pay Roll		
35	(7 × 34)	Betterment—Percentage of Superintendence	T20-96-XXXVIII	
36	(5)	TOTAL SUPERINTENDENCE		

All figures on lines Nos. 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32 and 34 to be put in in red ink.

Line No. 36 must also equal (9+11+13+15+17+19+21+23+25+27+29+31+33 + 35).

As explained in Table No. 9, the cost of loading from yard really ought to be considered a selling expense. In that way the larger the cost the less credit, and the smaller the cost the more credit due the selling department.

The total cost of distributing the ware is charged on a percentage of total sales. Of course, some ware requires a larger percentage than others and if desired, some other method of dividing the cost can be arrived at to show this difference.

TABLE NO. 14—SELLING

Line No.	Post From		Post To	
1	T32-35	TOTAL GROSS SALES		
		Deductions		
2	T20-XXXII	Outgoing Freight		
3	T20-XXXIII	Losses in Transit		
4	T20-XXXIV	Allowances		
5	T20-XXXV	Commissions		
6	T20-XXXVI	Discounts		
7	(2 to 6)	Total Deductions		
8	(1—7)	TOTAL SALES F. O. B. FACTORY		
		Selling expenses		
9	T20-XXII	Salaries		
10	T20--XXVI	Traveling Expenses		
11	T20-XXVII	Office and General Expenses		
12	T20-XXVIII	Advertising		
13	T15-16	Administration		
14	T9-13	Total Cost Loading Ware from Yard		
15	(9 to 14)	TOTAL SELLING COST		
16	(7 + 15)	GRAND TOTAL DISTRIBUTING COST		
		Percentage of Total Sales into:—		
17	(7 ÷ 1)	Total Deductions		
18	(15 ÷ 1)	Total Selling Cost		
19	(17 + 18)	GRAND TOTAL DISTRIBUTING COST PERCENTAGE	T16-33	

Line No. 19 also equals (16 ÷ 1)

* * *

What the Bureau of Standards is Doing

In his monthly report to the Secretary of Commerce, covering October, the Director of the United States Bureau of Standards has the following to say relative to the ceramics research work during that time:

"Very satisfactory progress was made on all tests and experiments under way, including those on the use of domestic clays in making graphite crucibles, porcelains, particularly pyrometer tubes, silicon brick, the investigation being conducted for the Refractories Manufacturers' Association with standard brands of fire-brick, optical glass investigation, the use of hydrated lime in Portland cement concrete and in the terra cotta investigation conducted for the National Terra Cotta Society."

Speaking of the actual tests that were made, the director says:

"Twenty-two samples of clay were examined. Four tests of fire-brick for load and fusion were made. Absorption tests were conducted on nine samples of building brick. A refractory material was prepared and five flattening blocks were molded for use in the glass house."

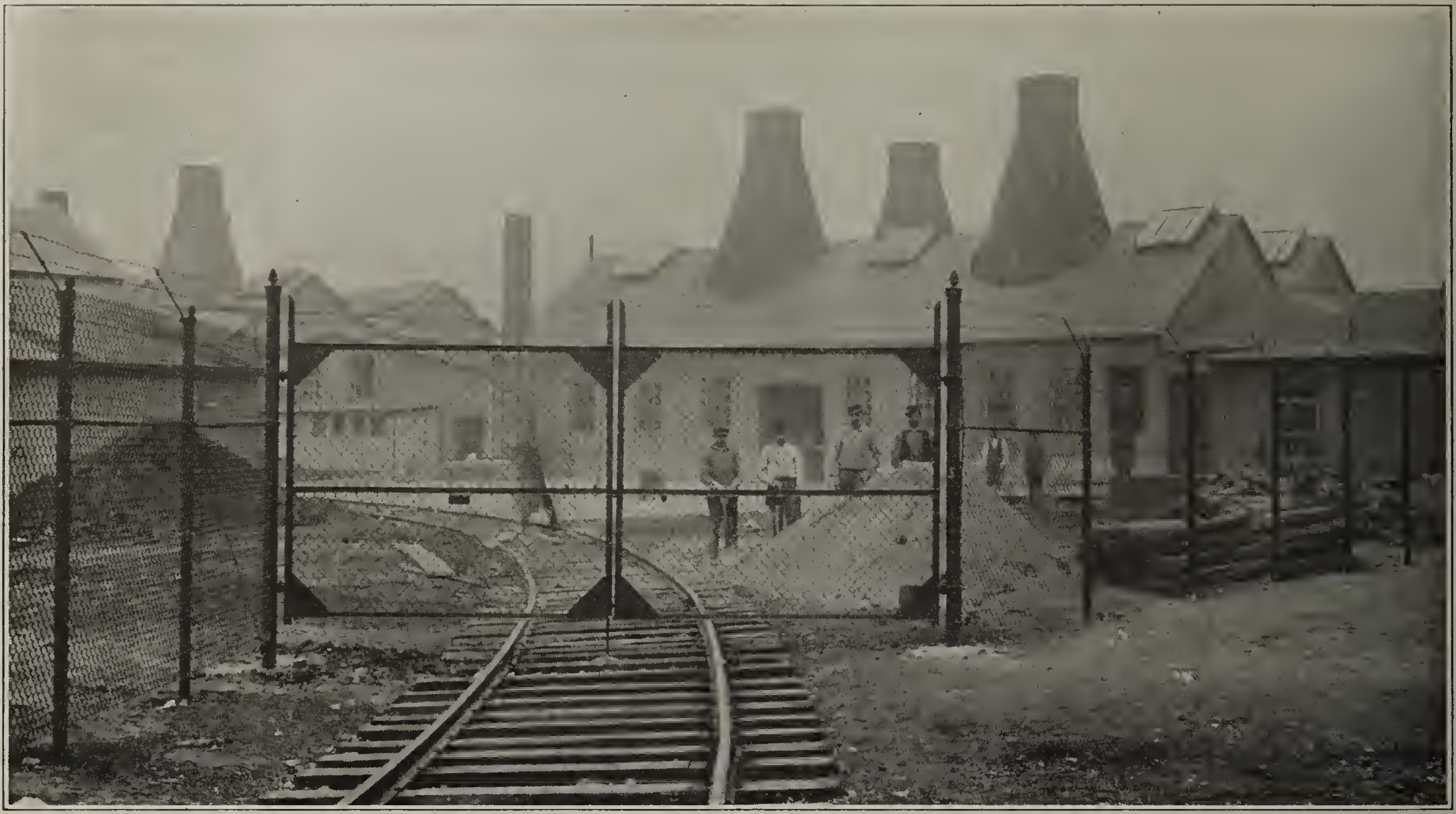
The director gives the following account of the conference held at that point recently on fire tests of walls and partitions:

"A conference was held at the bureau recently with representatives of various technical associations for the purpose of drawing up a comprehensive program of fire tests of various types of building walls and partitions, such as metal lath and plaster, stucco, gypsum, hollow-tile, brick and concrete partitions and walls.

"Many important details governing these tests were considered, such as types and dimensions of partitions to be tested, the temperatures to which the partitions are to be exposed, the time of exposure to fire, the water test to which the heated partitions should be subjected, etc.

"Representatives from the National Brick Manufacturers' Association, the American Society for Testing Materials, the National Board of Fire Underwriters and other organizations participated in the conference.

"The fire tests outlined by the committee in co-operation with the representatives of the bureau will be carried out with the panel furnace recently installed by the bureau and which is the largest and most complete plant for such work ever built. It is confidently believed by the committee that these tests will have an important bearing on all fire-resistant building construction."



A Double Gate Across the Railroad Siding, Leading Into the Maurer (N. J.) Factory of the American Encaustic Tile Company, Completely Protects This Vital Point Which Is a Means of Easy Entrance on Most Plants, Even Tho Protected by a Fence

The BURGLAR-PROOF PLANT

How, With the Aid of a Steel "Watchman," the Factory Can Be Kept Free From Marauders and Inquisitive Parties, and at the Same Time Beautified

THE ERECTION of an insurmountable, indestructible fence for the protection of the manufacturing plant against visits that are occasionally made by idlers and petty thieves, and for making it a safe place for the storage of materials, is a subject that is rapidly gaining recognition among prominent manufacturers of today.

SOLITARY WATCHMAN IS INADEQUATE PROTECTION

It is obviously impossible for a lone watchman left after the day's work is done to make his rounds in the long hours of the night, or for the superintendent and workmen during the day to prevent the admission to the plant of undesirables whose presence constitutes a menace to the safety of property and, in extreme instances, of the lives of the men.

Another important question that should receive some attention is that of keeping the employes of the plant within its boundaries during working hours. Here again, by the use of a suitable enclosure, a very tangible benefit might result, in that at all times the men on the plant would be kept under the direct supervision of the superintendent or official in charge.

To the manufacturers of burned clay products these things mean much. Often the report of a petty burglary or of a huge loss sustained thru theft comes to light on a clay plant, telling of loss that might have easily been prevented had a fence been erected that would have kept the guilty party outside the company's property.

NEAT FENCE BEAUTIFIES THE GROUNDS

From the aesthetic point of view, an additional advantage is to be seen in the erection of a suitable fence in that it beautifies considerably the surroundings in which it is placed. It gives to the plant a subtle air of prosperity and progressiveness that cannot but strengthen the estimation of the company in the minds of those whose patronage means its continued activity.

At least one company engaged in the manufacture of a burned clay product has struck the stride of advance in plant protection and beautification that twentieth century progress has set, by erecting a fence of woven steel around its entire property—a distance of approximately eleven hundred feet.

TYPE IN USE ON AN EASTERN TILE PLANT

In selecting a type of fence to be erected, the American Encaustic Tile Company of Maurer, N. J., considered permanence, strength, and appearance as the important factors. Consequently, it decided upon a steel woven fence as being infinitely superior to one of wood which, while less in initial cost, would have meant an expenditure for upkeep far in excess of that accompanying the use of the steel type.

As previously mentioned, the fence around the American

Encaustic Tile Company's property is about eleven hundred feet in length. The woven steel fabric is fastened to heavy galvanized anchor posts, made of 2½-inch carbon-steel U-bars. These posts are set eight feet apart, are driven into the ground and held rigid and permanently erect by two anchor stakes driven diagonally thru slots clamped to the sides of the posts about at the level of the ground. In this instance, the fence rises to a height of eight feet, seven feet of the woven steel two-inch mesh fabric being used on top of which are stretched three strands of barbed wire on diagonal arms that extend inward.

WELL-MADE GATES A DISTINCT ADDITION TO PLANT

It was necessary, of course, to provide for the entrance and exit of trucks and wagons to and from the plant and, as in the case of most clay products factories, for trains. To take care of this feature, five gates were built in all, one of the accompanying pictures illustrating that in use across the railroad siding. The gates are all made strong by the use of 2x2x¼-inch tee bars, which are reinforced at the corners with wrought iron gusset plates. The hinges on all these gates are heavy malleable iron castings and are adjustable. Of the five gates, that spanning the railroad siding is the largest, being sixteen feet in width. It is a heavy double gate and is locked in the center by a swivel bar held in position by a padlock when the gate is closed. These gates may also be held by means of a drop-bolt engaging in a cast-iron block set in the center of the roadway. The other four gates are all of the double type, two of them being twelve feet wide and the remaining two ten feet in width.

In the construction of this fence the top rail, that is usually employed, has been omitted and a strand of heavy coiled spring wire is furnished at the top and bottom of the fence, to which the fabric is fastened. Heavy corner-posts of three-inch steel pipe, with truss braces extending in both directions, insure the fence against any weakness that might arise at these points, while a four-inch steel post is used to support the gates.

HARD TO GET IN, BUT HARDER TO GET OUT

The fence is a very good protection against trespassers, since the small two-inch mesh of the woven steel fabric makes it impossible to climb. Should a trespasser be able to get to the top of this portion of the fence he would find it a perplexing problem to get over the strands of barbed wire without doing himself considerable personal injury and, being penned in after he had made a successful entry, he would find it a much harder task to climb back over the courses of barbed wire strung on the long arms that incline inward. Further, the extremities of the galvanized steel mesh are trimmed to a saw-like edge that adds another difficulty to the surmounting of the enclosing wall.

There can be no doubt that a fence of the type described is a good investment and one that will, in many cases, pay for itself in two years by the service it renders. Its cost is low enough to warrant its consideration by all manufacturers who desire to protect their plants from theft to a greater degree than is possible when only a watchman is employed; who want to minimize the fire risk, and control the coming and going of their employes. It is deserving of the consideration of those who desire to improve the appearance of their factory grounds and, by so doing, provide an incentive to the employes to keep the place in a neat and orderly condition.

OPEN-WORK FENCE MUCH BETTER THAN WOOD

An open-work fence such as that used by the American Encaustic Tile Company does not shut out light nor air and, unlike board fences, it provides no convenient place for dumping rubbish. Since it is constructed of a galvanized steel-woven mesh that is self-supporting, that will not sag even when it is attached to the posts with moderate tension, and that is capable of bearing great weights when it is tightly stretched, its original cost is its only cost—and a low one when the benefits attending its use are considered.

A Fence Such as is Shown in the Accompanying Illustration Does Not Obstruct the View to Passers-by, While Keeping Undesirables Out

⁂

To Contest Railroad's Right to Seize Coal

A contest of the right of a railroad to seize coal consigned to a manufacturing plant will soon be started in the courts of Cuyahoga county, Ohio, by attorneys of the Barkwill-Farr Company, Cleveland. The action is based upon the confiscation by the Big Four railroad of three carloads, one hundred and fifty tons, of coal consigned to the Barkwill-Farr Company while en route to Cleveland, on Saturday, November 12th. L. B. Koblitz, treasurer of the company, was informed of the road's action by the Big Four freight agent, and was advised to return the invoices to the shippers. Instead, the brick concern proposes to contest the right of the railroad to take such action in these times. There is a provision in the interstate commerce law which permits the railroads to seize the coal for its own use. In the opinion of Robert C. Mitchell, salesmanager of the company, the concern will stand to lose several hundred dollars, as the coal on contract cost $2.90, and now the company will have to go into the open market and pay about $6 a ton.

⁂

English Pottery Industry Unaffected by War

The manufacture and sale of pottery in England has not been affected by the war to any appreciable extent, says a United States government report. Exports from the United Kingdom for the month of September were valued at $1,275,699, a material increase compared with the values for the corresponding month in 1915 and 1914, $818,915 and $742,389 respectively, according to reports from American consuls in Great Britain. For the nine months ending September 30th, 1916, the total value of the exports of these wares, $9,473,000, was in excess of that for the corresponding period of 1915 to the amount of over $2,000,000. During the first nine months of the present year $1,425,000 worth of pottery was exported to the United States.

POROUS BRICK *by* USE *of* SAWDUST

A Timely Topic and of Distinct Value to the Industry, is Discussed in This, the Second Winning Paper in the Ceramic Students Essay Contest

By B. T. Sweely

A Student in Ceramics at Iowa State College.

THIS WORK WAS DONE to find if it were possible to make a good porous brick for heat insulation that would be practical for a plant owner to manufacture on his own plant. That such insulating material is desirable is shown by "A Study of the Heat Distribution in Four Industrial Kilns," reported by A. V. Bleininger in the Transactions of the American Ceramic Society, Vol. X.

The greatest cause for loss of heat in periodic kilns is due to radiation. From Prof. Bleininger's data has been calculated the following heat distribution in open kilns burning three classes of ware:

	Sewer Pipe	Paving Brick	Building Brick
Heat taken up by ware	5.7	11.3	19.55
Heat taken up by kiln	5.7	5.6	9.77
Heat lost due to unburned fuel in ashes	4.6	3.9	3.51
Heat loss due to air above fifty per cent. excess	3.4	1.6	3.03
Heat loss due to gases leaving kiln hot	15.2	28.3	24.30
Lost by radiation	65.3	49.3	40.00

THE SECRET OF CONTINUOUS KILNS' SUCCESS

Considerable could be done toward lessening the radiation from periodic kilns by building thicker walls and crowns and using better heat insulating materials. Altho it is not generally recognized, the great saving in fuel accomplished by the substitution of continuous kilns for those of the periodic type is due, in large part, to the smaller amount of radiating surface per unit of ware and to their heavier construction. In fact, if continuous kilns saved all the fuel used in periodic kilns in other ways, but lost as much by radiation as do the periodic, they could not show the efficiency they do. It is on account of this difference in radiation losses between the two types of equipment, that attempts to apply the continuous system of burning to a group of periodic kilns, by connecting them up by a system of flues or pipes, have not been as successful as might be anticipated. In this connection, it is believed that a steel shell for a kiln is a good thing. It will hold the kiln in shape and prevent cold air from leaking in at cracks. However, care should be taken to see that the insulating qualities of the wall are at least equal to those of an ordinary kiln wall.

Of course, the larger part of the radiation from kilns comes from the crowns. It would pay brickmakers to investigate means of insulating these. In this country, crown coverings for periodic kilns are either absent or very light. In Europe, they are made at least a foot thick. The covering should make a fairly good insulator and be light and resistant to wind and rain. Ashes have been used, but they blow about in windy weather and wash badly in heavy rains, besides soaking up all the water that falls on them. A mixture of ashes and clay has been suggested, and also the use of hollow-tile. Probably the most satisfactory material would be very porous brick or slabs. Such brick are on the market, but it should be possible for a brickmaker to manufacture a satisfactory material for himself. In all cases, the covering should be coated with a cement wash to make it waterproof.

A DESCRIPTION OF THE EXPERIMENT

The clay used in the experiment was a Mason City (Ia.) shale of about average plasticity, or a little above. The sawdust was common sawdust from soft wood. It was put thru a twelve-mesh sieve, and the screenings were put thru a twenty-mesh. All that was retained in the twenty-mesh was used in the test. This gave a quite uniform size of particles.

The clay was made up to a slip, using three parts by weight of water to two of clay. Another slip was made exactly the same but with the addition of five per cent. by volume of Na_2SiO_3 solution. This silicate was about as thick as ordinary syrup.

Three sets of samples were made from each slip. The first by taking two pints of the slip and stirring into it all the sawdust possible while still retaining plasticity enough to enable them to be molded into briquettes. Then two brick were formed in a screw press. Others were formed into briquettes by the wet process in a slop mould. A second set contained only three-fourths as much sawdust as the first set, and a third set but one-half as much.

The briquettes were then dried and burned to cone 02 and porosity determined. The results are shown below. The use of the silicate did not improve the brick to any appreciable degree, and further data or discussion of this part of the work will not be given, inasmuch as the increase of the cost due to the silicate would not be justified by the results obtained by its use. No. 1 represents the maximum amount of sawdust possible to use with the slip; No. 2, three-fourths that amount, and No. 3 one-half that amount.

Absorption of Sawdust Brick

No. 1	No. 2	No. 3
79.7 per cent.	75.6 per cent.	69.7 per cent.

A SUMMARY OF THE RESULTS

From the above it is seen that the porosity decreased with decrease in sawdust, as would be expected. It was observed that No. 1 was so porous as to lack sufficient tensile strength to hold together for handling. No. 2 with but four per cent. decrease in porosity, was sufficiently strong to stand any ordinary handling necessary to placing in a wall when used for heat insulation. Its high porosity would make it a good insulator. No. 3 was of greater tensile strength than No. 2, but was almost too dense to be a satisfactory heat insulator, so it was decided that No. 2 most nearly filled the requirements for the purpose intended.

The simplicity of the composition and process of making these brick would make their manufacture at any plant practical and, thereby, save the expense of buying more expensive insulating material.

MANUFACTURER CAN MAKE OWN INSULATING BRICK

If these brick were to be made in large numbers, the following method would be found practical. The slip should be made up approximately three parts of water to two of clay or less and, for every pound of sawdust used, screened as mentioned at beginning, about two and one-half pints of slip. After thoro mixing the brick should be molded by the wet process, dried and burned to above cone 02, care being taken not to burn too fast, or the sawdust would ignite, fuse the outer shell of the brick, and cause bloating and warped ware. They could probably be burned by setting them as the inside wall of double-wall wickets in ordinary kilns.

This work shows that it would be practical for a manufacturer to make his own porous brick at a small cost, and of the materials at hand, instead of paying the usual high prices for insulating materials.

* * *

National Paving Brick Association Making it "Hot" for Non-members

A campaign to increase the membership of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, now is under way. The chief feature of the movement will be each member endeavoring to secure the application of a manufacturer who is not now in the fold. This campaign was one of the important measures provided for at the last annual meeting of the organization at Terre Haute, Ind., in October. Each member will be given a list of three or four non-members, and asked to select from this list one whom he will personally approach on the subject. Other members will not know whom he selected. In this way several members may be interesting the non-member, while at least one member will see one non-member, according to the plans for the campaign.

"The reason we have adopted this plan," Will P. Blair, secretary, explains, "is that there are scarcely sufficient non-members to make it a one man task, so all the members will engage in the campaign, and each non-member may be approached by half a dozen. The office board has sent out letters to each member, asking him to select some one upon whom he will exercise his persuasive powers to bring him into the fold. This campaign ought to be short, quick and successful. By January 1st, 1917, there should be filed in this office application for membership from every manufacturer in the country not now enrolled.

"Strenuous efforts are also being made to secure from every manufacturer statistical data in 1917, by which the importance of the industry will be known to the country. Not only the amount of brick manufactured and sold will be ascertained, but the information will disclose as to what sized towns, cities or country highways furnished the market for paving-brick."

* * *

Car Shortage is Ohio Clayworkers' Nightmare

Eastern Ohio and all Ohio Valley sewer-pipe plants, while crowded with orders, are experiencing a most unusual condition because of the fact that they cannot fill their contracts. One plant in the Jefferson county (Ohio) territiry is over five hundred cars of pipe behind on one order alone. Car shortage is assigned as the only cause for this unusual state of affairs. The increased selling lists on pipe has nothing to do with wants, the contractors being more than willing to buy at the market price if they could get deliveries.

Plant managers have been bending every effort to secure cars, but it appears that the shortage is such that the carriers are simply unable to secure sufficient rolling stock for all shippers.

There has also been some delay in securing usual requirements on contracts from the coal mines, but the manufacturers have not been put to so much inconvenience along this line as they have with the inability to secure cars for shipping. No relief for the last-mentioned condition appears to be in sight just at this time.

Paving-brick plants in the Ohio Valley, altho operating to capacity, have also been caused more or less inconvenience thru inability to secure cars. As brick road improvement programs are about completed for the current season, the demand for "empties" does not appear to be as strong as was the case several months ago. However, the brick manufacturers have many orders yet to ship this year, and most of the plants are in need of cars.

Thousands upon thousands of dollars in bonds for brick road improvement programs have been sold and authorized at the recent election, so that the demand for paving-brick for 1917 will surpass all previous requirements.

The demand for fire-brick from the iron and steel centers is enormous and, according to report, some exceptionally heavy orders are laying around at attractive prices because the brick manufacturers are unable to take care of them. Because of the known fact that the iron and steel industry is possessed with business that will insure full operations far into the new year, the demand for fire-brick is bound to keep pace with the first mentioned industry. In addition to requiring large amounts of fire-brick for repair work, new furnace construction in the iron and steel industry is such that sales of fire-brick for the past nine months topped all previous records.

* * *

Urges Pottery Making in Schools

The making of pottery in the schools of Wheeling, W. Va., as a subject to be taken up in connection with manual training and technical work, is being advocated by C. E. Jackson, president and general manager of the Warwick China Company of Wheeling. While Mr. Jackson has expressed himself as being heartily in favor of the manual training work as it is now being taught in the schools, he believes that a still greater benefit might accrue if the boys learned subjects more closely related to the local industries. In this way the boys would learn useful trades while still in school.

* * *

Will Develop Latin America Kaolin Deposit

United States Consul Samuel H. Wiley at Asuncion, Argentina, South America, reports that there has recently been considerable interest shown by Argentina capitalists in immense deposits of kaolin in Paraguay, South America. A company to be capitalized at about $2,500,000 is being organized in Argentina to develop the principal deposit thus far discovered. The bed, which is reported to contain about 7,800,000 cubic yards of kaolin, is located at Tobati, Paraguay, about thirty miles from the line of the Paraguay Central Railroad. The material is believed to be of an unusually high grade, suitable for the manufacture of chinaware.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

A SPLENDID "BOOST" FOR FLOOR AND WALL TILE

One of the finest examples of publicity in favor of clay products that has come to the attention of the writer recently is a forty-page brochure on "Tile Floors and Walls for Hospitals," which has been issued by the Associated Tile Manufacturers, with headquarters at Beaver Falls, Pa. The association, which has been carrying on a vigorous campaign of advertising in this field, is composed of the Alhambra Tile Company, American Encaustic Tiling Company, Atlantic Tile Manufacturing Company, Beaver Falls Art Tile Company, Brooklyn Vitrified Tile Works, Brunt Tile and Porcelain Company, Cambridge Tile Manufacturing Company, Grueby Faience and Tile Company, Matawan Tile Company, Mosaic Tile Company, National Tile Company, Old Bridge Enamel Brick and Tile Company, Perth Amboy Tile Works, C. Pardee Works, Wheeling Tile Company and United States Encaustic Tile Works.

The brochure is beautifully illustrated with views from leading hospitals of the country, showing how tile is used for walls and floors of operating-rooms, instrument rooms, public wards, diet kitchens, toilet-rooms, nurseries, laundries, rest-rooms, dining-rooms, amphitheaters, waiting-rooms, chapels, children's wards, dressing-rooms, bathrooms, laboratories, kitchens and, in fact, all parts of the hospital.

The tile manufacturers have been making a special "drive" on hospitals because of the numerous opportunities for the use of their product in this field, and because its sanitary qualities appeal especially to hospital workers. The book which has been issued emphasizes a point which all having to do with sales work should appreciate, namely, the importance of knowing the conditions under which the product is to be used.

For example, the brochure contains one page in colors, showing how tile can be adapted to any color scheme which may be decided on in the design of the operating-room, where the question of the proper background is at present being debated. Again, it is shown that in the children's wards illustrations can be worked out in artistic, sanitary tile, so as to be thoroly in keeping with the surroundings.

The Associated Tile Manufacturers used a clever idea in sending out this book to hospitals. Each copy was numbered, and the name of the institution written by hand in ink in a space provided for this purpose. It was also noted here that extra copies would cost fifty cents, thus impressing upon the recipient the value of the book. A government postcard, to be used in making acknowledgment of receipt of the brochure in good condition, was also enclosed, the whole idea tending to impress on the person receiving the book its importance and interest. That, under the conditions, it will get a careful reading, there is no room to doubt.

* * *

The Dealer's Advantages

While a great deal of the sewer-pipe which is sold for use in the building of new sewage systems in the smaller communities is placed directly by the manufacturer, the latter, as a rule, are more than willing to let the local dealer take care of the business, if he has the necessary aggressiveness to handle the trade. One of the leading sewer-pipe makers recently explained his ideas on this subject thus:

"We solicit this business direct only as a last resort. We would much prefer to have the local dealer sell the pipe, because he is thoroly familiar with conditions, being right on the ground and having a personal acquaintance with the people who are handling the job. Sometimes, however, the retailer is not desirous of handling this business, or a town where there is no clay products concern will undertake sewer construction, and then we have to go after the trade ourselves."

This manufacturer emphasized the fact that the retail end of the sewer-pipe business is growing, for the reason that knowledge of sanitation is becoming more general and the number of towns and cities without sewer systems is getting smaller. In every community where a system of sewers is in operation there is a steady demand for the smaller sizes of pipe for house connections, and this means, of course, that the local man has plenty of opportunities for making sales. All of this points to continued expansion of this department of the clay products field.

* * *

A Time-saving Telephone List

Speaking of telephones, it has proved to be an excellent idea, saving any amount of time in the course of a day's work, to list alphabetically the names of all concerns with which the firm has business, or which it has occasion to call up. Written on paper sufficiently stiff, or mounted on cardboard and hung near the principal office telephone, such a list facilitates immensely the business of getting in touch with people who are called often in the course of business. Where there are several 'phones, there might very well be a list for each telephone. It has been found that where the telephone number of a contractor or architect is made available at a glance, in this manner, a call is often made which might otherwise be put off indefinitely; which, of course, means that a bit of business is occasionally done which might not have been done without this assistance.

The leading salesman of an active brick and material concern, who has learned to use the telephone as a time-saver to a very considerable extent, has a list of this sort, written in double-space on a typewriter on three sheets of legal size paper, under the glass top of his desk, so that all he has to do to find a number is to glance down at his desk and secure it while he is getting the exchange. He has been heard frequently to wonder "how on earth" he got along without it, the moments saved and the incentive to "obey that impulse" and make a call "whenever the spirit moves him" being very much worth while.

* * *

Clay Products in the Dealer's Stock.

"Did it ever occur to you," remarked a well-known manufacturer not long ago, "that the building material dealer has a unique advantage in connection with the clay products which he handles, such as brick, tile, sewer-pipe, etc.? That is to say, they will not spoil and, consequently, he is able to carry stocks which would be dangerously large if they consisted of some other materials. He doesn't want too much lime around, because of the danger of its slacking, and he knows that if his cement happens to get too much moisture and sets, it is all over with it.

"That is why he buys sparingly of these materials, and usually gets little more than he needs for immediate use. The result is that his orders are ordinarily for less than carloads, on which he has to pay a higher freight rate.

"When he goes into the market for clay products, however, he realizes that the material is permanent and will resist exposure to the elements and, therefore, he is justified in buying in full carlots, getting whatever discounts for quantity that are available, and also securing a low delivered price by reason of the carload rate which applies to the shipment.

"This should mean greater enthusiasm on the part of the material man in the small town in pushing clay products and, as a matter of fact, I have found that when this end of the proposition is called strongly to the dealers' attention, they realize the practical advantages of putting the loud pedal on clay products, which can be handled without danger of deterioration."

SPECULATIVE BUILDERS WHO SELL QUALITY HOUSES

AN UNUSUAL DEPARTURE in the character of speculative building, which holds much of interest for the brick manufacturer, has taken form in Cleveland, Ohio, in the incorporation of the Brick Homes Company, a concern which proposes to build and is building brick homes to sell at a price from $3,500 to $5,000 each.

This company, which was incorporated some time ago, is just getting its work to the point where some idea of its character can be obtained. The accompanying illustrations show two of the homes built by this concern which are a credit to the neighborhood, to say the least.

All of the buildings being erected have solid brick walls with a facing of "front" brick. The roofs are of a fireproof nature, many of them being covered with clay tile. Various sections of the "Sixth City" have been selected for the erection of these houses and they are finding a ready market among home seekers. In fact, a sale far in excess of what was anticipated is being realized by the company. Moreover, the demand for frame structures in the sections where these homes are being built has practically ceased, according to a local authority, which proves the point that when the public has an opportunity of choosing between brick and frame at practically the same price, brick is the favorite in nearly every instance.

No apartment buildings are being contemplated by the company in question, all of its efforts being devoted to the erection of homes, as its name indicates. The houses have finished attics and the price includes everything, even to the most minute detail. While, as has been above mentioned, various sections of Cleveland have been chosen as sites for these homes, most of them so far have been erected in the East End, in strictly residential neighborhoods. Thus far about six houses have been sold, it being planned to erect a total of ten this year. Plans for next year call for the building of fifty houses.

L. S. Connelly of the Connelly Company, one of the largest real estate operators in Cleveland, is head of the Brick Homes concern, while Andrew Pentland, superintendent, formerly of the firm of Petrie and Pentland, is in active charge of the work of building these houses. Mr. Pentland has had many years of experience as a contractor and is a practical brick mason.

The Type of House Being Erected by the Cleveland (Ohio) Brick Homes Company

These Homes Have the Average Product of the Speculator's Art Literally "Backed Off the Boards"

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Minimizing Danger from Unused Explosives

The storage of surplus quantities of explosives where danger is reduced to the lowest degree is a subject worthy of serious consideration by those manufacturers who have use for this material. In many instances the "sticks" left over find a comfortable, yet decidedly dangerous resting place alongside the little heating stove in the pit workers' shanty. In other cases the material is stored in or near the plant where there is danger that it may be set off prematurely.

Placed At a Safe Distance From the Plant, this Heavily Constructed House, Used for Storing Surplus Explosives, Provides Good Insurance Against Costly Accidents

To obviate the occurrence of any such accident, one paving-brick manufacturer whose shale necessitates the "gentle coercion" of a heavy explosion to pry it loose from its bed, has constructed a dynamite house in which to place all explosives not being used.

Built of pavers, without windows and with but one door, which is a heavy iron affair, and having a fireproof roof, this structure certainly guards against accidents which might spring from that source. The house is placed at a distance sufficiently far from the plant so that, if any premature explosion should take place, the plant itself would not be damaged to any extent.

* * *

How Do You Handle Hackers' Waste?

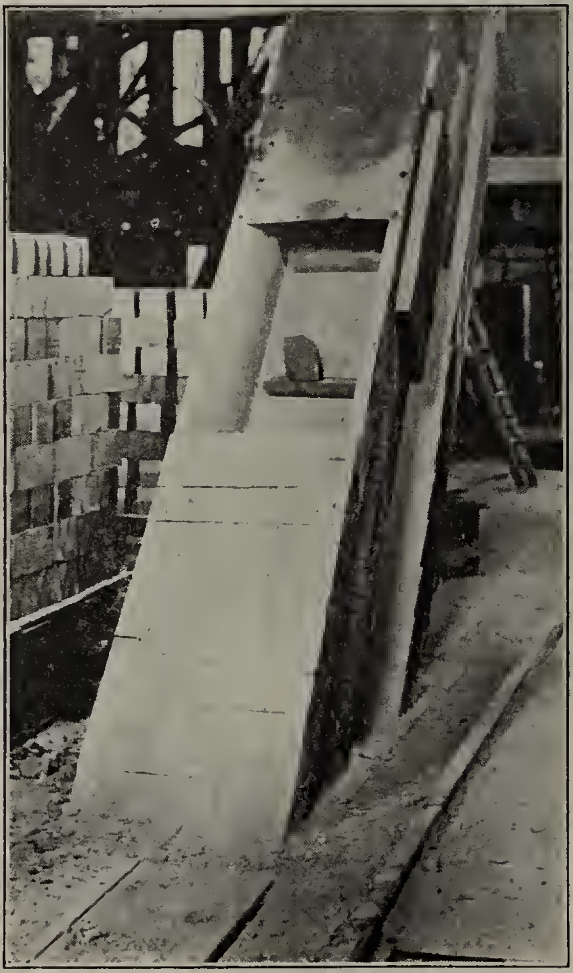
Hackers' waste is that material which finds its way onto the off-bearing belt only to be tossed back because of improper consistency of the clay column, or because it is traveling too rapidly, or for some other reason. The manner of handling this waste varies so much on different plants that a word or two in regard to one of the best methods of treating the problem may not be amiss.

In most cases the belt onto which the waste clay is thrown leads directly back into the pug-mill into which it dumps its load. In other plants it is customary to allow enough of this waste to accumulate at the side of the hackers to warrant its being shoveled back into the pug-mill. Then again the floor at the end of the off-bearing belt offers a satisfactory resting place for the rejected material until the opportunity is presented to take care of it.

It is evident that the last two of these three practices are certainly not to be commended, while the first is the source of unlimited trouble in many instances.

When the clay column issues from the die its surface has been slicked by friction and lubrication. When a part of this column is thrown back into the pug-mill the surfaces of the pieces cannot and do not knit properly with the remainder of the clay in the mill. The knives strike the smooth, oily surfaces and often the clay reaches the auger machine in much the same condition as it was in when dumped into the pug-mill.

Even the compressive action of the auger fails to bond the slicked surfaces of the returned material with the rest of the clay. The result is that not only does the column suffer from lamination that it acquires in passing



Operating at the Side of the Hacker Belt, This Waste Elevator Belt Carries Its Load Back to the Storage Shed, Thereby Eliminating One Source of Lamination

thru the die but it is also weakened to a great extent by the divisions of its interior structure brought about by the addition of the oily and compressed pieces of clay.

While this trouble is somewhat more pronounced in the case of oil lubrication, the effects of steam lubrication are almost if not as harmful.

The accompanying photograph pictures a properly designed waste belt. Instead of running back to the pugmill, it takes its load directly to the storage, where the hard, moist and oily surfaces are given a chance to dry out. It is then reground in the dry-pans, losing entirely the compressed surfaces it acquired in passing thru the die.

Thus, since the mass is not a mixture of new ground clay and hard, oil-slicked pieces that have come back from the off-bearing belt, the auger machine receives a consistently pugged material from which it turns out a column of clay that is not handicapped by a heterogeneous structure and stands a fair chance of making a representative showing in the rattler.

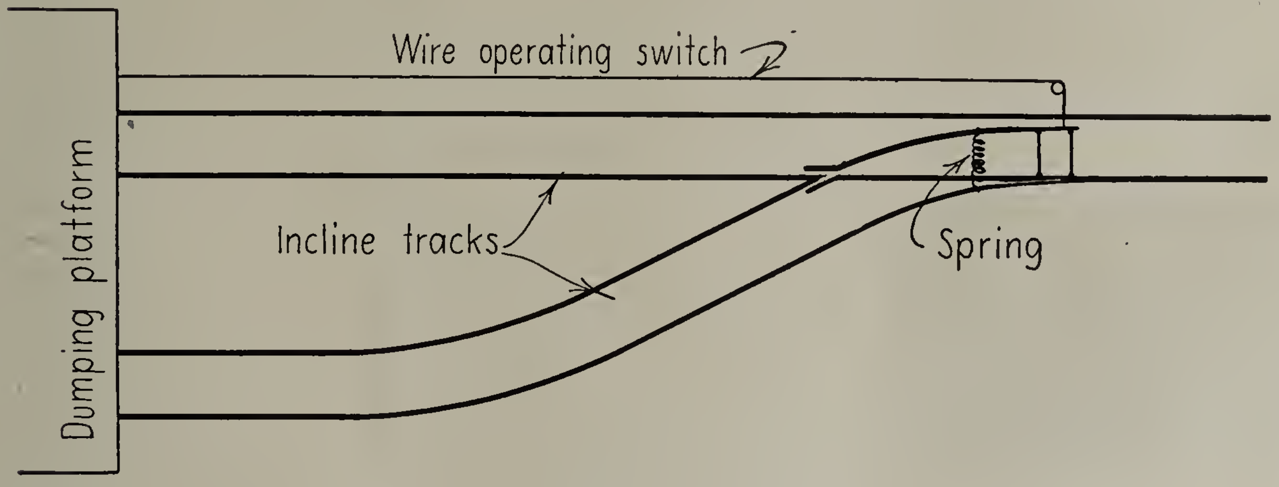
Another interesting feature of the arrangement shown is that at the foot of the elevator conveyor is a hopper into which the material that has been spoiled in the drier is dumped, only a corner of which can be seen on the accompanying picture. The drier waste, therefore, receives the same treatment as does that returned from the off-bearing belt—a method of handling which solves a problem that is troubling many superintendents.

* * *

Controlling Car Course from Dumping Platform

A track layout that permits absolute control over the course to be followed by the clay cars in being hauled up to the dumping platform by the man who is in charge at that point, is shown in the accompanying drawing. It is a layout that is of special value where there are two machines in use which receive the clay directly from the cars or where there are two parts to the storage shed, in which case it is possible to effect an even distribution of the clay.

As may be seen, the switch is held closed by a spring, keeping the straight course up to the dumping platform open. When it is desired to switch the cars onto the other track, so that their load may be carried to another machine or to some other part of the storage shed, it is only necessary to pull the wire that is shown to be connected to the switch. This wire extends up to the discharge end and is operated by the man working at that point. It is apparent that, when the wire is pulled, the force of the spring is overcome and that the switch which is closed by the action of the spring, is opened.



The Track Layout Shown Here Makes It Possible for One Man at the Dumping Platform to Control the Course Which the Clay Car Takes to the Storage Shed or Machine Room

Besides its other advantages, this system has made it unnecessary to keep a man at the switch to take care of sending the cars over the proper route.

* * *

Protecting Dried Ware from Rain

Some form of protection during wet weather for dried ware as it is being transferred from the drier to the kilns is a necessity on clay products manufacturing plants, if loss is to be minimized. The work of the drier may be rapidly undone if, in the course of transporting the ware from the drier to the kiln, it is exposed to rain.

By Employment of the Transfer-track Roof Pictured Above, Protection is Given the Ware Being Taken from the Drier to the Kilns During Wet Weather

A track shed similar to that shown in the accompanying illustration will often pay a handsome dividend on the original investment necessary for its construction. The one here shown is taken from a paving-brick plant and consists chiefly of a wooden roof supported by iron posts. It is wide enough to provide ample protection for the cars of dried ware and extends the entire length of the drier track.

Especially valuable is a shed of this kind when the haul to be made is an exceptionally long one, as it is in this case, where the material would be exposed sufficiently long to do considerable damage.

Another item of great interest that may be seen in this picture is the complete pyrometer system employed and the method used in conducting the low voltage electric currents, that register the changes of heat, as detected by the thermo-couples in the kilns, on the indicating instrument in the superintendent's office. Differing from the average equipment in use for supporting the wires, this outfit of iron poles placed at regular distances alongside the transfer track shed, provides a permanent installation that adds greatly to the appearance of the plant.

You Should Know of the Many Advantages of
THE POTTS SPECIAL
A Soft Mud Brick Machine
Self Striking—Horizontal—for Common and Fire Brick
Ask Us for Details and Names of Users
C. & A. POTTS & CO., Indianapolis, Ind

BRICKMAKERS' HEADQUARTERS
FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
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Manganese Dioxide
We will be pleased to have your inquiries for prompt and forward shipment.
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UNION STEEL CHAIN BELTING
will fit your present Sprockets. If you want **Trouble - Proof** chain service at a minimum cost, you must use UNION STEEL CHAIN.
"The Chain of Double Life"
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WE CAN SAVE YOU MONEY
On clay working machinery. Repair parts for "McKenzie" brick and tile machinery. Hollow block, Fireproofing and special dies. Write for catalogue.
Brazil Machine & Foundry Co. Brazil, Ind.
We Furnish Repair Parts for the Kell's Line of Brick and Tile Machinery

Don't Neglect This!
Replace your plain babbitted bearings as quickly as possible with this combination graphite-babbitt sheet lubricator. It saves 75-90% oil. Saves belts. Write for information and trial order plan.
Randall Graphite Sheet Lubricator Co., 1816 W. Lake St., Chicago, Ill.

THE SLIP-STOPPING PULLEY
CORK INSERT PULLEYS
BRAKE LININGS, CLUTCH FACINGS AND TENSIONS overcome the worst conditions and produce operating economy.
SEND FOR CATALOG
THE CORK INSERT CO., 168A Federal Street, Boston, Mass.

TO STOP advertising to save money is like stopping a clock to save time.
—*The Little News.*

QUESTIONS

A Two Cent Stamp May Bring
You Advice That Will Stop
a Waste, Improve Your Ware
or Lower Your Production Cost

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

Class and Use of a 2,960 Degree Fire-brick

798. *Tennessee.—We have a grade of fire-brick which has recently been tested and found to have a fusion point of* 2,960 *degrees Fahr. We wish you would inform us what the working temperature is on this grade and just what uses this temperature suggests would be best for a grade of this refractoriness. We have not received the chemical analysis.*

This brick is what would be known in the trade as a third-grade, altho it is possible that it would be entitled to the standing of a rather high third-grade.

Its uses would be for ladles, chimney linings and similar work and for backing up high-grade fire-brick; that is, for use at any point where it would not come in contact with a high heat. This brick could not be used at points where requirements would call for a flint clay mixture.

⁂

Physical Changes in Clay Heated to Fusion

796. *Missouri.—How is it that heating clay past vitrification and on to fusion it first shrinks and then swells?*

This is a phenomenon that occurs in all red and buff burning clays and is particularly noticeable in the red burning clays. It is not easy to explain, as the causes vary so much in each different clay. This refers to the swelling only, as the shrinkage is understandable and is caused by certain definite reasons given briefly as follows:

Shrinkage in clay ware is a function of the quantity and kind of fluxing agents in the ware, and the degree of heat applied. For instance, if the clay contains a relatively high percentage of iron, alkalies or alkaline earths, then the fluxing materials are high and shrinkage will probably set in early or at low temperatures and will be excessive.

Shrinkage is caused by the fusion or incipient fusion of the clay or some constituents of the clay body or both, in which the particles shrink in size as they approach a melted or fused condition. During shrinkage the clay ware tends to lose its porous structure, it becomes dense and tougher, assuming a stony and, finally, a glassy structure as the degree of vitrification and shrinkage proceeds due to prolonged high or excess temperature.

So much for shrinkage. Now, why does the same piece of ware proceed thru vitrification and *shrink* and then enter incipient fusion and fusion and *swell.*

In our opinion this can only be caused by the uniform generation of a new series of gases, and this theory is confirmed in part by examining a piece of swelled ware that has *safely passed thru the vitrification period.* The structure is *vesicular, spongy,* but not porous. This surely is caused by a gas formation. These gases must be caused by the breaking down

and ANSWERS

Best Authorities in Every Clay-working Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

---

of the sulphates and the ferric iron, producing sulphuric acid gas and pure oxygen gas. The production of these or other gases in a viscous, semi-melted body precludes their escape as all pore structure is sealed and, therefore, they exert an expansive force, producing hundreds and thousands of little bubbles, the sum total of which produces a swelled piece of ware.

This swelled structure must not be confused with the swelling that takes place in ware due to imperfect oxidation previous to vitrification, as it is entirely different and in no wise connected. This last named swelling, its cause and cure, is discussed in the August 15th, 1916, issue of "Brick and Clay Record," on page 310, under the sub-head: "Oxidation of Carbon and Sulphur."

We would suggest, if the above does not clear up your question, that you send us more complete information regarding your material and the details of the story.

⁂

Wants to Learn Use for Rock Deposit

799. *Ohio.—Sometime ago I noticed in one of your issues an invitaiton for readers to advise of materials that might be used in the manufacture of refractories and allied products. I am, therefore, sending you, under separate cover, some samples of flint stone that underlies our old farm in great quantities—the only deposit of its kind in the state. A portion of these samples was placed in a common-brick kiln and subjected to 2,000 degrees of heat, but the temperature was not sufficient to calcine the stone properly. The following is the result of an analysis made of three samples by a Pittsburgh chemist before the rock was calcined:*

	Sample No. 1	*Sample No.* 2	*Sample No.* 3
Silica	95.15	96.05	98.55
Al_2O_3	.20	none	none
Fe_2O_3	2.10	2.70	1.10
Lime	.27	trace	trace
Magnesia	none	trace	trace
Moisture	1.62	.81	none

It looks to me as tho its most promising use would be for silica brick or as potter's flint. What is your opinion?

After a careful examination, allow us to state that all of the stone is amorphous in character, resembling very strongly chalcedony. As a matter of fact, it belongs to the chalcedony type of silica rock. It also resembles very much the appearance of French flintstone, since the amount of quartz present is quite small. It would seem, if this material could be obtained sufficiently free from iron oxide, that it would be exceedingly well suited for the grinding of potter's flint. It is quite possible that sample No. 3 submitted, showing the lowest content of iron oxide, would be the best for this pur-

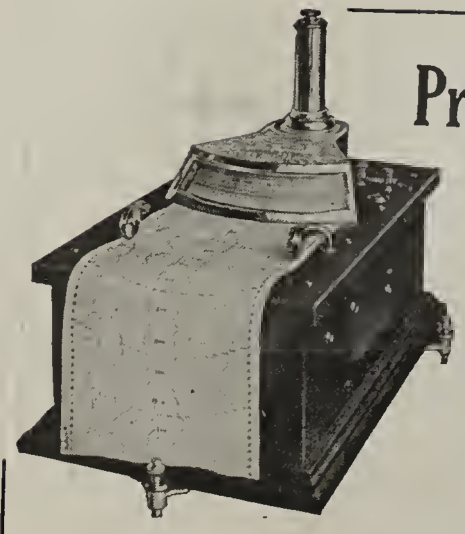
CRESCENT BELT FASTENERS
are low in first cost and make a joint which will easily outlast the belt. They save time, labor and belts.
Send for Booklet Three
CRESCENT BELT FASTENER CO.
381 Fourth Avenue, N. Y., U. S. A
ECONOMY

WOODHOUSE Welded-Link Chains
for Steam Shovels, Slings, etc.
WOODHOUSE CHAIN WORKS, TRENTON, N. J.

F. W. MORGAN & CO., (Inc.)
First Mortgage 6% Bonds
1319 First National Bank Bldg., Chicago
Specializing in BONDS ON CLAY PROPERTIES

Investigate Our Line
Dies for Clay Working, our Specialty. Brick, Fireproofing, Plain and Ornamental Hollow Ware Dies, for Auger or Steam Press; Piano Wire Clay and Sand Screens, Conveyors, Elevators, Dry Pan and Pug Mill Automatic Clay Feeders, Friction Winding Drums.
The Louisville Machine Company
Louisville, Ohio
Patentees of *The Roller Process Paving Block System*

Sand-Lime Brick Plants and Machinery
Especial attention to complete plants.
We pioneered the Sand-Lime Brick business in America.
We have the "Know-How" and the Equipment.
Let us Serve You.
Jackson & Church Company
Saginaw, Michigan



Price Pyrometers

Are just as important to the burner as a watch is to the engineer of a fast passenger train. Try to imagine your own predicament if you were forced to live for one week without any watches. Yet you allow your burner to guess at temperatures in $500 to $1,000 worth of ware.

The Price Electric Co.
12367 Euclid Avenue
Cleveland, Ohio

TRACK EQUIPMENT
Of Every Description
Especially Adapted for
Brick and Clay Plants

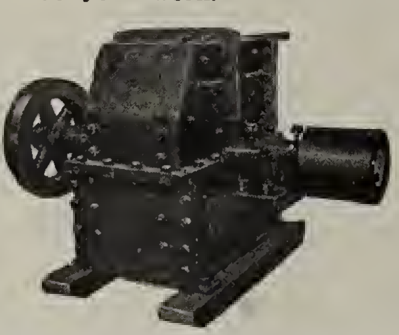
We manufacture
Portable Track, straight or curved, any gauge or radius.
Frogs, stiff or spring.
Incline Lay-outs, two or three-track.
Switch Stands, various styles.

NO MATTER
What you need in Track Equipment, write us first.
Ask for Catalog C3.

The Cincinnati Frog & Switch Co.
CINCINNATI, OHIO

The All-Steel
K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.

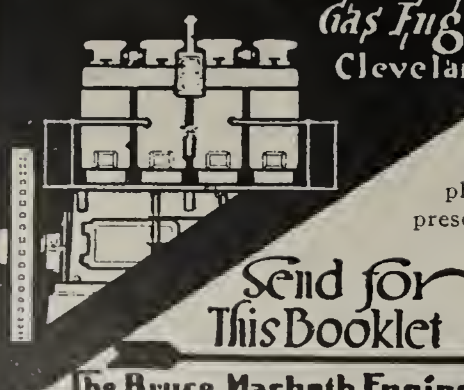


Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

Write today for full details to the

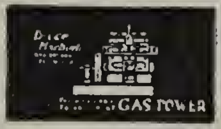
K-B Pulverizer Co., Inc.
86 Worth Street
New York

Bruce-Macbeth
Gas Engines
Cleveland



It will pay every user of power and electric current to look into a private power and light plant. It will surely lower present costs.

Send for This Booklet



The Bruce Macbeth Engine Co
2134 Center N.W.,
CLEVELAND

pose. In our opinion, a strong effort should be made to determine whether some of this flint is sufficiently low in iron oxide to be used in the manufacture of pottery. As you probably know, the supply of French flint has been practically eliminated from American markets, and we are very much in need of such a material.

As far as the chemical composition of the rock is concerned, there should be no objection to its use in the manufacture of silica brick, but a burning test should be made of a mixture of this material passed thru a twelve-mesh sieve and two per cent. of quick lime, slacked and thoroly mixed with the silica material. Samples thus made should be carried thru cone 18. Only an actual test, such as has just been described, can demonstrate satisfactorily the ultimate usefulness of this material for the purpose in question, and this should be made, by all means, as the material is of a very promising character.

* * *

Definition of Water-struck Brick

797. *New York.—We have been requested by one of our customers to refer them to literature defining the term "water-struck" in connection with brick. This party is interested in learning how the term originated and what sort of surface the correct definition is intended to describe. The writer has looked thru such literature as we have in the office here, but cannot find this term defined, so we are asking you to give us whatever information you can regarding this matter, in order that we may, in turn, transmit it to our customer.*

Water-struck brick are made by the soft-mud process, the molds being wetted to avoid the clay's sticking. When the mold is full, the surplus clay is struck off even with the top edges of the mold. This is usually done with a stick that is flat and reasonably sharp on one edge. To facilitate the passage of the stick thru the clay which is heaped up over the edges of the mold, it is also wet before the clay is struck, hence the name "water-struck."

This process is prevalent only in New England, all genuine "Harvard" brick being water-struck.

This last statement answers your question as to the sort of surface which "water-struck" brick have. There may be a few "Harvard" brick on the market that are made in sanded molds, but the difference between them and the genuine "Harvards" is easily seen, the latter being the standard.

* * *

Does Illinois Wash-room Law Apply to Clay Plants?

800. *Illinois—Two Illinois state factory inspectors called at our plant the other day and informed us that we must build a wash-house containing all modern conveniences for our employes. We were not aware that the law regarding wash-houses affected the brick industry and we are curious to know how many or what proportion of the clay plants in Illinois have complied with this law.*

Will you please give us some information on this matter and also an opinion as to whether the average brick plant comes under the wash-house law?

The act says "that every owner or operator of a coal mine, steel mill, foundry, machine shop or other like business in which employes become covered with grease, smoke, dust, grime and perspiration to such extent that to remain in such condition after leaving their work without washing and cleansing their bodies and changing their clothing, will en-

danger their health or make their condition offensive to the public, shall provide, etc."

Upon taking the matter up with a few of the Illinois clay products manufacturers, we find the consensus of opinion indicates the law to be a good one and worthy of being followed out. A man whom a good many of us address by his first name and whose opinion is highly valued, says, concerning this law:

> "We were under the impression that brick plants were included in the factory inspection law. We were so advised some time ago by the state factory inspector and have provided lockers and wash-rooms in compliance with the law."

While giving his views concerning the legality of the legislation in question, the following letter from a clay plant executive of unusual ability and of prominence in the industry, throws a different light upon the situation and reveals a spirit which we think is the right way in which to consider the law:

> "We do not believe this question has been tested in the courts, but it is our opinion that brick plants could be forced to install them (wash-rooms) under the act, and from our experience, we believe they should be installed for the benefit of the manufacturers, as well as the employe, for their men leaving their work in a proper condition of cleanliness will go home in a better frame of mind and have a better feeling toward their employer than they will if they are sent from their work in such a condition that their fellow citizens try to avoid contact with them on street cars and other public conveyances. The cost of wash-rooms is not excessive, and we believe it the duty of the manufacturers to make the installation whether they are forced to do so or not."

* * *

The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

PROSPERITY IS THE KEYNOTE of the present national building situation, when consideration is given to the many factors that have tended to restrict the launching of new building projects into the field of active operations. Despite the fact that labor costs and those of materials have greatly increased, and the delivery of all burned clay, as well as other building materials impeded by the most acute car shortage experienced for many years, building statistics for the past month, as a whole, indicate a very satisfactory condition. Reports from the building departments of eighty-six leading cities of the United States show that a total of $72,532,350 was expended for building during October—an increase of 20.1 per cent. over the figures of October, 1915,

Manganese Dioxide

All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

Crimora Manganese Corporation
15 Broad Street NEW YORK

Blasting without using the CYCLONE DRILL

is like hunting deer with birdshot. You can't possibly get good results.
We are ready to offer you facts and figures to prove that the Cyclone Drill will soon pay for itself.

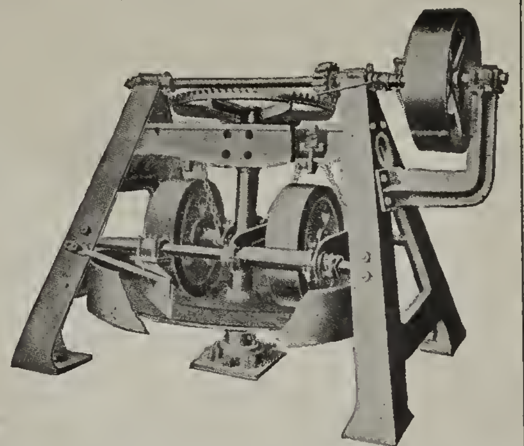
Ask for names of users and Bulletin No. 4

The Sanderson-Cyclone Drill Co.
ORRVILLE, OHIO

We can't say it too often—
When you think of cars, think of
Youngstown
They are made of steel—in the steel city—in the greatest clay district in the world. No better cars can possibly be made, and if you consider quality and satisfaction and low upkeep, you will have to give the highest honor to Youngstown Steel Clay Cars.

The Youngstown Steel Car Co.
Youngstown, Ohio

THE EAGLE DRY PAN



Write for Prices

EAGLE IRON WORKS DES MOINES, IOWA

Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

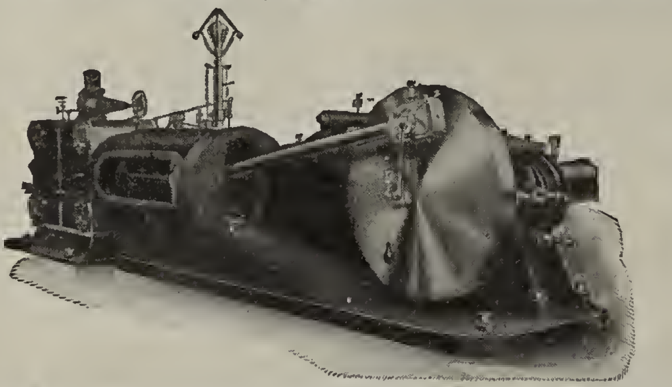
We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

The Stupakoff Laboratories
Pittsburgh, Pa.

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for
Catalogue
No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870
BURLINGTON, IOWA

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana

"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

Offices:
Steubenville, Ohio

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BUCKEYE MEANS BEST
BEST MEANS BUCKEYE

All Sections from
12 lb. to 40 lb.
per yard

Write or
wire us,
when in need.

No order too large to handle promptly or too small to secure immediate attention.

and exceeded this year only by the months of July, May, April and March.

LARGE BUILDING INCREASE IN AND OUT OF N. Y.

An increase of 22.9 per cent. over the same period of last year is seen in the value of building operations in New York City during the tenth month, while an increase of 20.1 per cent. is seen in the increase in the value of permits issued in the eighty-five cities outside New York from $50,758,954 in October, 1915, to $60,989,470 during the same month in 1916. Of great interest is the fact that only thirty cities showed a falling off from the records of last year and only seven of these registered a loss of more than $200,000. Much significance is attached to the fact that a pronounced gain has been made by such cities as Baltimore, Md., Indianapolis, Ind., Milwaukee, Wis., Seattle, Wash., and Los Angeles, Cal., cities which have heretofore attracted but little attention by their activity in building.

And, as has been mentioned, these advances have been made in the face of restrictive conditions that are doing much to curtail the activity of national building. Due to the rapid retirement of obsolete railroad equipment under the stress of the heavy traffic of the past year and to the deficiency of rolling stock, car shortages have become so acute in some sections that they constitute a decided menace to the building situation. In the thirty days ending September 30th, the net shortage increased from 19,873 to 61,030 cars—a figure that exceeds even the high point of the shortage in 1912. Coupled with this is the fact that since the supply of coal cars has been absorbed by other classes of shipments, the car supply at the mines has dropped to about thirty per cent. below normal. The consequent restricted output is resulting in the skyrocketing of prices to almost unheard of heights in both hard and soft coals. In some instances, bituminous is commanding double the normal figure.

CAR SHORTAGE AND COAL PRICES CLOSE SOME PLANTS

The effect of this upon the production of burned clay building materials may be easily appreciated. In some instances plants have been forced to abandon operations until prices reach a lower level. In other cases, shipments of material that has actually been manufactured are delayed long past the appointed dates. Some alleviation, however, is seen on the way by many manufacturers and dealers, as a result of the federal and state inquiries that have been inaugurated.

PRICE FOR N. Y. COMMONS HITS HIGH-WATER MARK

Starting an examination of local conditions that are representative of the status of building in the surrounding territories, we find that New York City is paying more for its commons than ever before at this time of the year. At the beginning of November quotations ran from $7.75 to $8.00 a thousand as against $6.50 to $6.75 this time a year ago. Another jump was made during the week ending November 4th that raised the price to the high-water mark of $8.25 with a mighty good demand from all parts of the metropolitan district save the Bronx where, for the first time in the memory of anybody in the building business, not a single cargo was sent during the week. The week ending November 11th failed to show any slackening in the continued rise in price for another quarter was tacked on, raising it to $8.50, a record for this season of the year. The Hudson river is the sole source of supply for the New York market since Raritans can only be obtained under term contracts and are not available on the open market at any price.

INCREASES IN BALTIMORE AND PHILADELPHIA

Building in Baltimore, Md., has been noticeably active, a large gain having been made in the value of permits issued in October of this year over those issued during the same month a year ago. Philadelphia shows a gain of more than a million dollars in the value of the operations during this period, over that of October, 1915. On the other hand, a decrease of about $500,000 has been suffered by Pittsburgh in the value of its operations during October of this year compared to the corresponding period of last year.

CLEVELAND TURNS LOSS TO GAIN

Altho in Cleveland the total of the first five months' building operations of this year showed a large falling off in value as compared with those of a year ago, figures show that such a forward jump has been made by the value of building operations during the last five months that not only were the totals of June to October, 1915, inclusive, greatly exceeded, but the aggregate value of the present year's building has been raised to the level of $27,000,000, which is about the same as last year's. October permits at this point tallied $5,262,355.

BUILDING IN COLUMBUS AND CINCINNATI

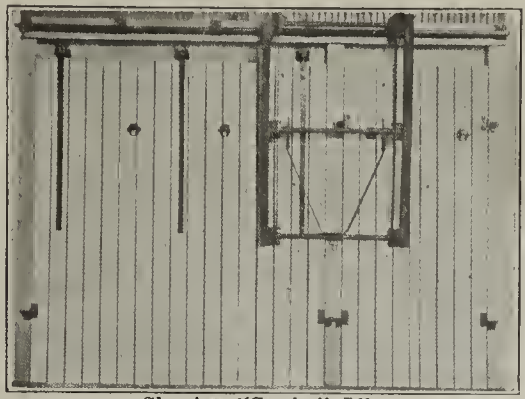
Similar encouraging reports are received from other Ohio points. Columbus, for instance, reports building during the month of October as especially active. With a valuation of $575,630, three hundred and five permits have been issued at this point during the tenth month. For the first ten months of the year 1916 the building department issued 2,813 permits having a value of $6,396,935 as compared with 2,494 permits and a valuation of $4,430,735 in the corresponding period in 1915. A slight falling off in both the number and value of permits was recorded in Cincinnati, when the records of October of this year are compared to those of the corresponding period of a year ago. While the number of permits issued during the first ten months at Cincinnati show an excess over those issued last year, yet the value of building operations indicates a large decrease, due chiefly to the construction of the courthouse last year at a cost of $2,400,000. Car shortage is hampering business here to a considerable extent.

LABOR AND CAR SHORTAGE THREATEN DETROIT

With building construction work estimated in value at more than $10,000,000 under way in Detroit, a complete paralysis of all activity, until the car shortage problem has been solved, is threatened by the action of the railroads in refusing permission to contractors and building supply companies to use coal cars for shipping. Another disagreeable factor that seems inclined to cause trouble in the Detroit situation is the threatening disturbance between contractors and labor, the outlook for an adjustment of which is not very encouraging. The temporary setback, however, is not interfering with the activities of the brick plants; if anything, the manufacturers would welcome a chance to catch up somewhat with orders so that they may be able to accumulate a supply for future trade. Detroit never had a larger month in building in her history than October of this year, the value of the work amounting to $5,755,540, almost twice that of last October's operations. During the full ten months of this year the enormous sum of $41,414,595 has been expended in building operations in Detroit.

HIGH COST PUTS DAMPER ON CHICAGO BUILDING

Louisville, Ky., is experiencing fairly active operations, a



Keep the Heat in Your Drier

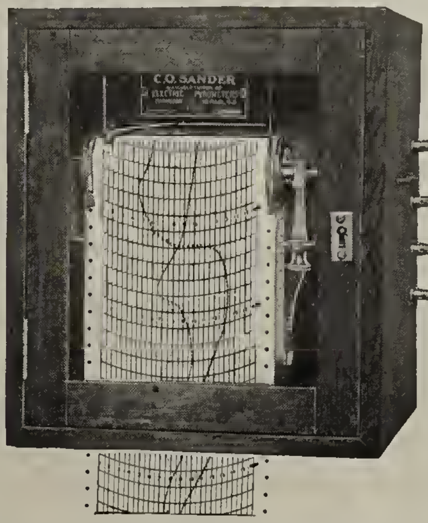
Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.
Write for catalog B2 and all details.
Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.



An Accurate Record

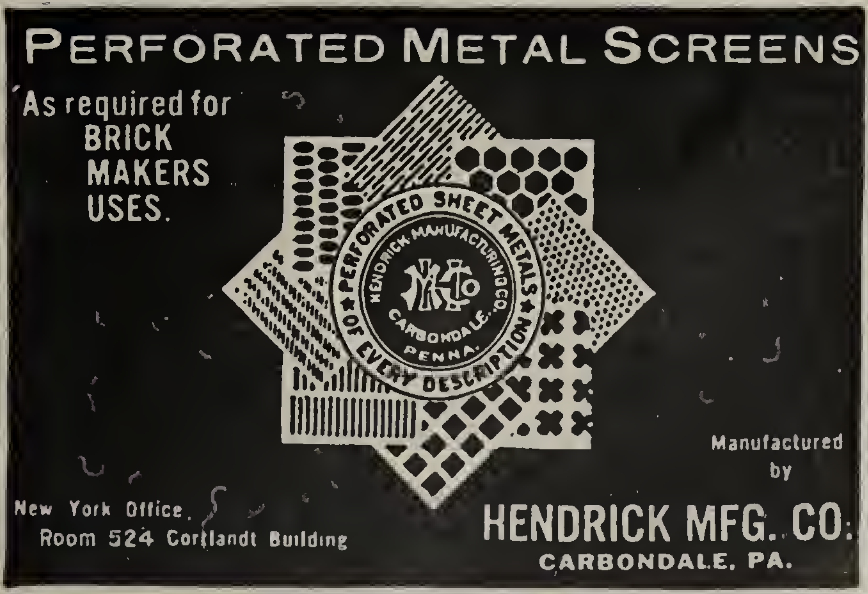
of the kiln's temperature—that is what you must have in order to secure an even burn. SANDER PYROMETERS guarantee accuracy.

The Sander Instrument Co.
136 19th Ave. Irvington, N. J.

Do You Need Dryer Cars?

Cars that are built heavy and strong—cars that will not warp—cars that will resist for years an alternation of low, wet heats and high, dry heats—cars that will stand rough handling—that only need oil to keep them moving, and bearing full loads, season after season. We have such cars and on these cars we guarantee satisfactory service, and on our Special Cars, Turntables, Grate Bars and Grey Iron Castings.

Pettigrew Foundry Co.
Harvey, Illinois



PERFORATED METAL SCREENS
As required for BRICK MAKERS USES.
PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
CARBONDALE, PENNA.
New York Office, Room 524 Cortlandt Building
Manufactured by
HENDRICK MFG. CO.
CARBONDALE, PA.

large number of contracts still remaining to be filled and some new business developing.

Chicago business has enjoyed a slight increase over that of a year ago, with the opinion prevalent that operations would be decidedly more abundant were not the cost of materials and labor so high.

Sioux City, Iowa, broke all previous records in its building of this year, and many important projects are being rushed to completion.

NINETEEN-SEVENTEEN MARKET ON COAST LOOKS GOOD

Building operations on the Pacific coast still show more than an average amount of activity, considering the lateness of the season. While but few buildings are being started, there is considerable work under way on projects commenced some time ago. All indications point to a very favorable increase in the amount of burned clay building materials to be used on the coast during the coming year, a large amount of work being on the boards of the architects. Paving-brick manufacturers of this section have experienced unusual prosperity and, since it has been conclusively proved that a high grade paver can and is being made, local authorities are showing a preference for this material. Sewer-pipe stands an excellent chance for a very much extended use during the coming year.

⁂

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Charles H. Bryan, a Detroit brick manufacturer, has been elected treasurer of the Detroit Board of Commerce.

L. D. Binyon and James Hogan of the S. S. Kimball Brick Company, Chicago, Ill., were visitors in Columbus recently. They were investigating producing conditions in the Hocking Valley.

J. S. McCann, superintendent of the new paving-brick plant of the Streator (Ill.) Clay Manufacturing Company, was sent to the hospital for the second time recently. He is suffering from an infection caused by stepping on a rusty nail.

Friends of J. C. Brannock, salesmanager for the International Clay Machinery Company, Dayton, Ohio, were grieved to learn of his death which came on Saturday, November 4th, as the result of a partial paralytic stroke and cerebral hemorrhage which set in on the preceding Thursday evening.

C. A. Gunning, who has divided his attention for a number of years between the Longmont (Colo.) Brick and Tile Company and the Gunning-Palmer Drug Company of the same city, has sold his share in the latter concern and will now give all of his time to the management of the clay plant.

John E. Landrum, age seventy-four years and president of the Columbus Clay Manufacturing Company at Taylor Station, Ohio, and the Rush Creek Clay Company at Junction City, Ohio, died on November 1st, at his home, 1152 Franklin avenue, Columbus, Ohio. He was a native of Hebron, Ohio, but lived for some time at Reynoldsburg and came to Columbus

SIL-O-CEL PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder. Has 10 to 12 times the heat insulating value of firebrick.

Produces absolutely uniform heat and reduces fuel consumption.

The reduction in rejected pieces will pay for the insulation in the first month of operation.

Prevents Heat Penetration

KIESELGUHR COMPANY of AMERICA
NEW YORK 11 Broadway CHICAGO Monadnock Bldg. LOS ANGELES Van Nuys Bldg. SAN FRANCISCO Monadnock Bldg. TORONTO 61 Sumach St.
Write nearest Office for Samples and Information.

"SERO" BELT DRESSING

Has been used for several years by a large number of brick and tile plants and its best recommendation is, that plant managers who began to use it four or five years ago are today our best customers. Our guarantee on "Sero" is so broad that there is absolutely no risk in using it—in fact we will furnish a 50-lb. can, subject to approval, to be returned at our expense if not satisfactory. Write for literature and prices.

SERO SPECIALTY CO., Cleveland, Ohio
We also make "Sero" Gear and Cable Coating and Manilla Rope Dressing.

But—You Can't Do It

You can't get the kilns unloaded on time—You can't prevent accumulated demurrage on cars—You can't have satisfied hustling wheelers—

UNLESS

You have a fleet of INVINCIBLES

Look!

IT IS BALANCED

The axle is under the load—NOT at one end of it. It slides—down the runway—and the hind legs don't rip and tear.

It Rides Its Load

THE TORONTO FOUNDRY AND MACHINE CO.
TORONTO, OHIO

to reside about five years ago. He had been interested in the clay manufacturing business all his life.

Henry Nesch, president of the Pittsburg (Kan.) Paving Brick Company, was killed on October 30th when he attempted to "break" an automatic revolver, believing it to be empty. The revolver was discharged, sending a bullet thru his abdomen. He was immediately taken to the hospital, where an operation was performed, but without avail. Mr. Nesch was born in Atchison, Kan., in 1874 and went to Pittsburg with his father in 1890. He became president of the brick manufacturing company following the death of his father a few years ago.

The many friends of Earl E. Libman, who recently acquired a place in the spotlight as a winner from the University of Illinois in the ceramic students' essay contest, conducted recently by "Brick and Clay Record," will be pleased to learn that he plunged into matrimony on November 1st, Miss Bertie D. Ehrlich of Chicago being the other party to the agreement. The couple spent two weeks in the "I will" city and then returned to Peoria, Ill., where Mr. Libman will continue as assistant engineer with the Illinois Construction Company.

Alabama

Twenty-five clay products manufacturers of Georgia and Alabama recently attended an old-fashioned southern barbecue at the home of Frank Bickerstaff, Brickyard, Ala. The spacious lawn directly opposite the brick plant provided an ideal place for such a gathering as the guests were constantly in a home-like atmosphere of brick dust and hot cinders.

California

It is reported that R. S. Glenn of Porterville, Cal., is starting to develop a deposit of fire-clay in Fish Valley, about seventeen miles from Coalinga, Cal.

A big air compressor with a 50 h. p. motor and a triplex pump with a 5 h. p. motor have been installed in the new plant of the Los Angeles Pressed Brick Company, located near Elsinore, Cal. A frame building to be used for handmade products has just been erected. Two kilns of brick have been burned at the plant but the product is being used for building at the plant. The factory is expected to be ready for extensive operations with fifteen kilns by the first of the year.

Celebrating the close of an unusually successful season during which more than 2,500,000 brick were manufactured, Will McMullin, manager of the Pomona (Cal.) Brick Company, entertained the employes of the company and a number of friends at a chicken dinner held at the plant. For several years it has been Mr. McMullin's custom to close the manufacturing season in this manner when the last kiln of brick is being burned. On this occasion the chickens were placed in the kiln and roasted to a tender brown, while biscuits were baked and cranberry sauce prepared. The spread was held in the brick yard sheds. The surprise of the evening, however, occurred after an hour of bone-polishing had passed, when the guests presented Mr. McMullin with a beautiful gold watch charm.

Connecticut

New Britain (Conn.) brick manufacturers are quoting a price of $16.50 per thousand for their product, with prospects of a still further increase, and are finding it difficult to fill orders even at this price. A year ago brick was quoted at $10 with a plentiful supply.

THE plant is at Canton, Ohio, but the bricks are used pretty nearly everywhere. "Metropolitan" is stamped boldly on the side of every one of them—*burned in to stay*, because the makers' quality makes the brand stand for something. Now

"MARIONS" Take Out the Clay for 200,000 "Metropolitans" Daily

—and as a proof of their respect for the way our Shovels do things, the Company has recently bought another "Marion"—their fifth—with the encouraging comment that if they need more equipment, "more 'Marions'" would be their choice.

We'll be glad to supply you with the facts, without obligation—just ask for Booklet A120.

Marion

We Make Excavating Machinery of Every Description

Branches:
Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY

Established 1884 MARION, OHIO

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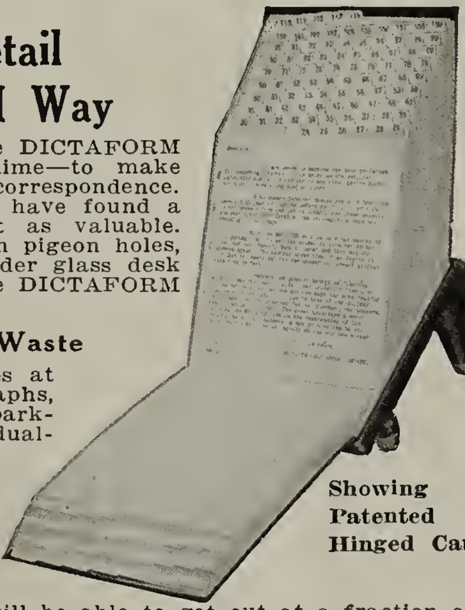

Handle Office Detail the DICTAFORM Way

The first purpose of the DICTAFORM was to save dictating time—to make easier the handling of correspondence. But DICTAFORM owners have found a score of other uses just as valuable. Data that formerly was in pigeon holes, drawers, on walls and under glass desk pads has all gone into the DICTAFORM—placed at fingers' tip.

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The DICTAFORM places at instant reference—paragraphs, phrases, and arguments sparkling with your own individuality. You think out your strongest answers to a question, classifying the argument under its proper heading, and put it into the DICTAFORM. Through continuous use of these prearranged paragraphs and letters, you will be able to get out at a fraction of the former cost—ten times the volume of correspondence possible if each letter was dictated separately.

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A Handy Office Assistant

The DICTAFORM places immediately before you your prices, sizes, weights, descriptions, ideas, campaign schedules, proofs of cuts, cost estimates, time tables, lists, addresses and phone numbers—in fact, everything to which you have occasion to refer.

Note These Features

Loose leaf, hinged cards, that tip into perfect reading position. Leaves locked in so they are always in place. Changes can be made as often as you like, for you merely attach data to the card body. Headings on index cards can be changed to suit your requirements. No carbon copies necessary—number notations on incoming letters answer this purpose.

Write for FREE Trial Offer

Write for descriptive circular on the new Meilicke DICTAFORM and for details of our free trial offer. Or, better still—send $12 for one Meilicke DICTAFORM. Money refunded if not satisfactory.

MEILICKE CALCULATOR CO.
376 North Clark Street CHICAGO, ILL.

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MEDAL OF AWARD
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THWING
HIGH RESISTANCE MULTIPLE RECORD
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Their Merits are Vouched for by
Hundreds of Satisfied Users

Ask for our New General Catalog No. 8

THWING INSTRUMENT CO.
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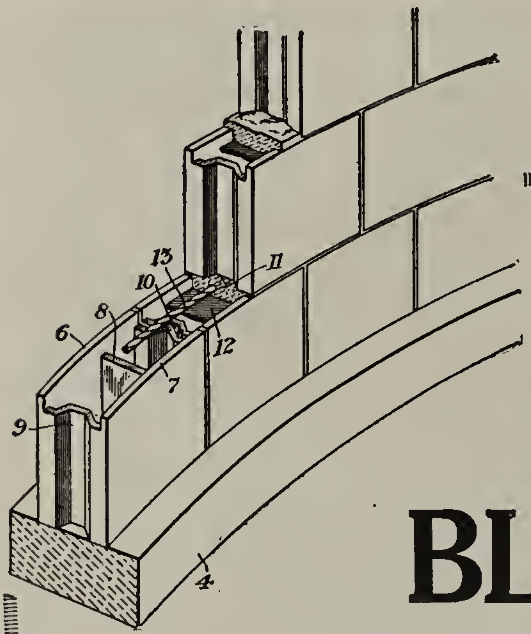


"AJAX"
SILO
BLOCK

This block embodies a brand new idea in Silo construction, it greatly improves on all present forms of clay tile silos. It is patented. We invite correspondence looking to the sale of state rights for **"Ajax" Hollow Tile Silo Block.**

Southern Pipe and Culvert Co.
Macon, Ga.

District of Columbia

Reorganization of the New Washington Brick Company, Washington, D. C., is now under way, the corporation being in default of interest on its six per cent. bonds since November, 1912, and a general debtor to the amount of $65,000 plus interest. The reorganization committee is composed of William V. Cox, J. C. Heald and E. L. White. The committee has urged bondholders to deposit bonds with the trustee, one of the local trust companies. Already $201,000 worth of bonds have been deposited. The committee proposes a compromise with the creditors, who are in litigation for their claims, on the payment of $8,000 covering claims of $33,000. This arrangement would enable the receiver to sell the property of the corporation and the bondholders then would buy it in. Following such a step, a new company would be organized.

Georgia

The Columbus (Ga.) Sewer Pipe Company is improving its present method of manufacture by the installation of a nine-foot dry pan, a perforated metal slide screen and a rotary drying system. These improvements will undoubtedly result in the production of a better product, as the clay in use at this plant is of the yellow plastic variety.

Idaho

The Heyburn Brick and Tile Company, Boise, Idaho, has just been incorporated. The capital stock is placed at $10,000 and the incorporators are L. St. Clair, H. G., V. T. and Joe Pullman.

Illinois

About twenty-five members of the senior and junior classes in the Ceramic Engineering Department of the University of Illinois recently made a trip of inspection over the large clay products manufacturing plants of Danville, Ill. They were headed by Professor C. W. Parmelee, Professor H. C. Arnold and R. K. Hursh, instructors in the ceramic department.

Indiana

According to a statement recently issued by F. A. Rodgers, salesmanager for the Clay Products Company, which maintains headquarters in Indianapolis, Ind., and operates large clayworking plants at both Brazil, Ind., and Abingdon, Ill., material is now on the ground and work will commence immediately on the construction of the large paving-brick plant that is to be erected by the company at Brazil.

Iowa

The plants of the Mason City (Iowa) Brick and Tile Company have been completely electrified, this change from steam to elcetric power having been accomplished within the past few weeks.

W. L. McKissick of the Carlisle (Ia.) Brick and Tile Company is planning to build a clay products manufacturing plant at Albia, Ia., in the near future. After making several investigations of clays in that city, he has obtained an option on a tract in the western section, located on the main line of the Chicago, Burlington and Quincy railroad. Tests of the clay at that point, however, have revealed a deposit of foreign material that may make it necessary to locate elsewhere. When a suitable location has been discovered a spur track will be put in by the railroad company and the work of erecting the plant will commence.

Construction of the new clay products manufacturing plant promised for Knoxville, Ia., is soon to start. The concern, incorporated under the laws of South Dakota with a capital stock of $200,000, will soon commence building a modern nine-kiln plant on a twenty-acre tract of land recently purchased. The site of the plant is located in the northeastern section of the city near the Rock Island tracks. R. J. Goodwin is president of the newly incorporated company and associated with him are S. L. Davidson of St. Paul, who is to be general manager; Earl Foft of Woodward, Ia., slated as first vice-president; C. M. Lawrence of South Dakota, second vice-president, and W. J. Goodwin of Des Moines, Ia., secretary and treasurer. Mr. Davidson, general manager, recently completed a clay plant at Scandia, Ia.

Kentucky

The lower board of the General Council of Louisville, Ky., recently let the yearly contract for all the vitrified brick to be used in the city during the coming fiscal year, the "plum" going to the Albion (Ind.) Shale Brick Company.

The plant of the Louisville (Ky.) Brick Company has been closed temporarily, according to a statement made at the office. Operations will, however, be resumed shortly. Meanwhile the company is making deliveries from the stock of brick on hand.

Brick manufacturers of Paducah, Ky., and vicinity, have been much gratified by the announcement of new tariffs which will mean a saving of from one hundred to two hundred per cent. on freight costs covering shipments to southern territory. The new rates become effective December 15th and will enable the manufacturers to compete with all others in Central Mississippi Valley territory. The large reduction in rates means also an opening of new territory and an expansion in business. An example of the heavy tariff reduction is shown in the rate to Union City, Tenn., from Paducah. The present rate is seven cents. Under the new tariffs this becomes 2½ cents, while other reductions are in proportion. The Paducah Board of Trade has been making the fight for this reduction for several months. In the case before the Interstate Commerce Commission, however, the clay mine operators were not as successful, the commission having held that the increase in rates on clay in carloads from producing points in western Kentucky and Tennessee is justified.

Michigan

The Grand Rapids (Mich.) Brick Company is making plans to increase its kiln capacity and to make other important improvements at its plant.

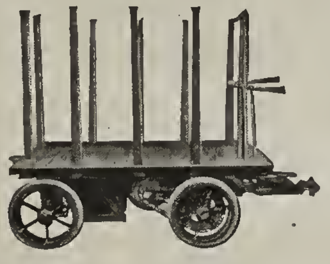
The Michigan Vitrified Brick Company of Bay City, Mich., which filed a petition for dissolution of the incorporation and later sold the supply of brick on hand and the machinery in the plant, was purchased recently at a second sale by its custodian I. W. Ballard and, it is understood, there will be a reorganization of the company in the near future.

Because of the swift growth of Detroit, some of the local brick manufacturers have been anticipating their future requirements by securing additional clay land. The George H. Clippert and Brother Brick Company has purchased one hundred and fifty acres of clay land, twelve miles from the Detroit city hall and on the main line of the Wabash railroad. The Clippert brothers had the clay analyzed. In the negotiations it was represented as being of the same quality as that now used in making brick in the Springwells district. The Clippert concern is one of the oldest companies engaged in the industry around Detroit. George H. Clippert and Charles F. Clippert, who succeeded their father, Conrad Clip-

KOPPEL

SAVES LABOR

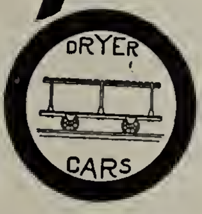
THE
ELECTROMOBILE
TRADE MARK
INDUSTRIAL TRUCK



Electromobile Trucks, Tractors and Trailers and Koppel Clay and Dryer Cars form a transportation equipment which is paying big dividends wherever used.

Write for catalogs and estimates.

ORENSTEIN-ARTHUR KOPPEL CO.



Plant: KOPPEL, PA.

SALES OFFICES:
NEW YORK PITTSBURGH
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Branches all over the world.
The "Electromobile"—Electrically Driven Industrial Truck.

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

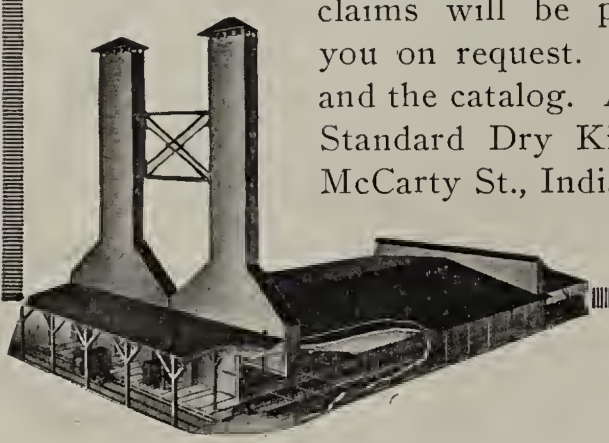
We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. East Liverpool, O. Philadelphia, Pa.
Boston, Mass. New Orleans, La.

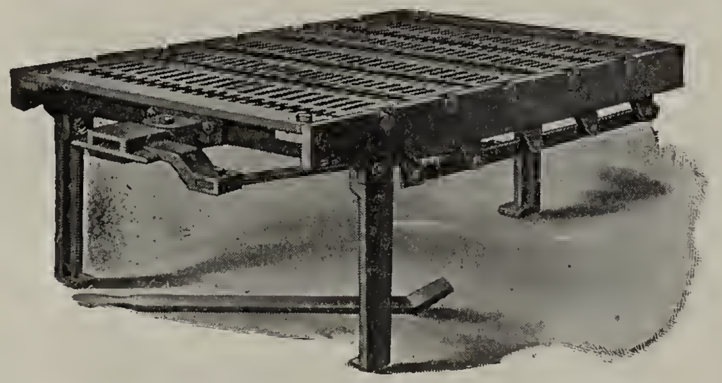
The Standard Brick Drier

produces an unusually high percentage of face brick—at an unusually low fuel and labor cost—while maintenance is so slight as to be a trivial item.

Satisfactory proof of the above claims will be placed before you on request. Write for it and the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

pert, are preparing their sons, Harrison and Conrad, respectively, to succeed them when they relinquish active management of the business.

A consolidation or merger has recently been effected between the McDonald Coal and Brick Company and Frank L. Shafer and Company, Inc., Detroit (Mich.) dealers in brick. The organizations of both concerns will continue as heretofore. Offices will be maintained at 807 Kresge building, Detroit, with display rooms in connection. Mr. Shafer, Harry T. Janney and Edward G. Prout will be just as active as ever in the affairs of the new company. The office in the Hammond building has been discontinued. The merger gives the combined companies a total of four yards. For sometime Mr. McDonald has been having common-brick shipped to his yards from Chicago. With Mr. Shafer, he recently made a trip thru Ohio to acquaint the manufacturers there with the new organization and, incidentally, to get action on forty-nine carload shipments of brick. Mr. McDonald reports a good demand for every kind of brick in Detroit.

Missouri

A side track four thousand feet long, paralleled by a second one two thousand seven hundred feet in length, is soon to be built to the site of the proposed new plants to be erected by the Walsh Fire Clay Company of Vandalia, Mo. The construction of these plants was to have been undertaken several years ago but the project was, for some reason, abandoned. That the contracts have been let for the construction of the side tracks to the proposed site is taken as an indication that the new plants are to be built in the near future.

New Jersey

Clay products manufacturers from the Raritan river district of New Jersey are planning to attend the annual meeting of the National Brick Manufacturers' Association, to be held in New York during the early part of March. That this section will be well represented at the sessions to be held at the Hotel McAlpin is certain, as great interest is being taken in the convention. Hearing that the brick manufacturers will come to Perth Amboy before the convention ends to view the plants in the Raritan river section, the local board of trade is making preparations to entertain the delegates. Manufacturers in this district claim that no clay convention in New York would be complete without a trip to Perth Amboy and vicinity, where the large plants are located. Much good, it is claimed, would result from the inspection.

New Mexico

Articles of incorporation were filed recently by the Ancho (N. M.) Brick Company, the capitalization being $450,000. Of this amount $2,000 has already been subscribed. The incorporators of the new company are J. E. Morgan and J. Franklin of El Paso, Tex.; O. V. Rye, S. W. French of Douglas, Okla.; M. Earle of Des Moines, Iowa; S. Heyfield of Ancho, N. M., and T. H. O'Brien of Dawson, N. M.

New York

The Jamestown (N. Y.) Shale Paving Brick Company recently started the manufacture of wire-cut-lug paving-brick. This company has been making pavers for more than thirty years and has rebuilt its plant so that it is now modern and fireproof. It has a daily capacity of 65,000 brick and operates five rectangular kilns and a continuous kiln, and gets its clay from a seventy-five acre shale bed located within one hundred feet of the city limits. A. N. Broahead is president of this company and R. F. Fisher manager.

Ohio

The Thomas Moulding Company, face-brick dealers of Chicago, has decided to locate its Columbus office in the Hartman building, where a suite of rooms has been leased. J. P. Turpin will be in charge of this office.

The American Face Brick Company of Cleveland, Ohio, has been incorporated with a capital of $25,000 to manufacture and deal in brick and other clay products. The incorporators are John Harms, Alvord L. Bishop, R. A. Hayes, K. E. Gough and G. K. Allgeier.

The Cleveland (Ohio) Brick and Clay Company has been added to the list of wire-cut-lug paving-brick manufacturers, having recently started the manufacture of this type of paver. The company is among the prominent paving-brick concerns in northern Ohio, having a daily capacity of 60,000 brick. J. L. Higley is president of the concern and A. L. Hendershot is secretary.

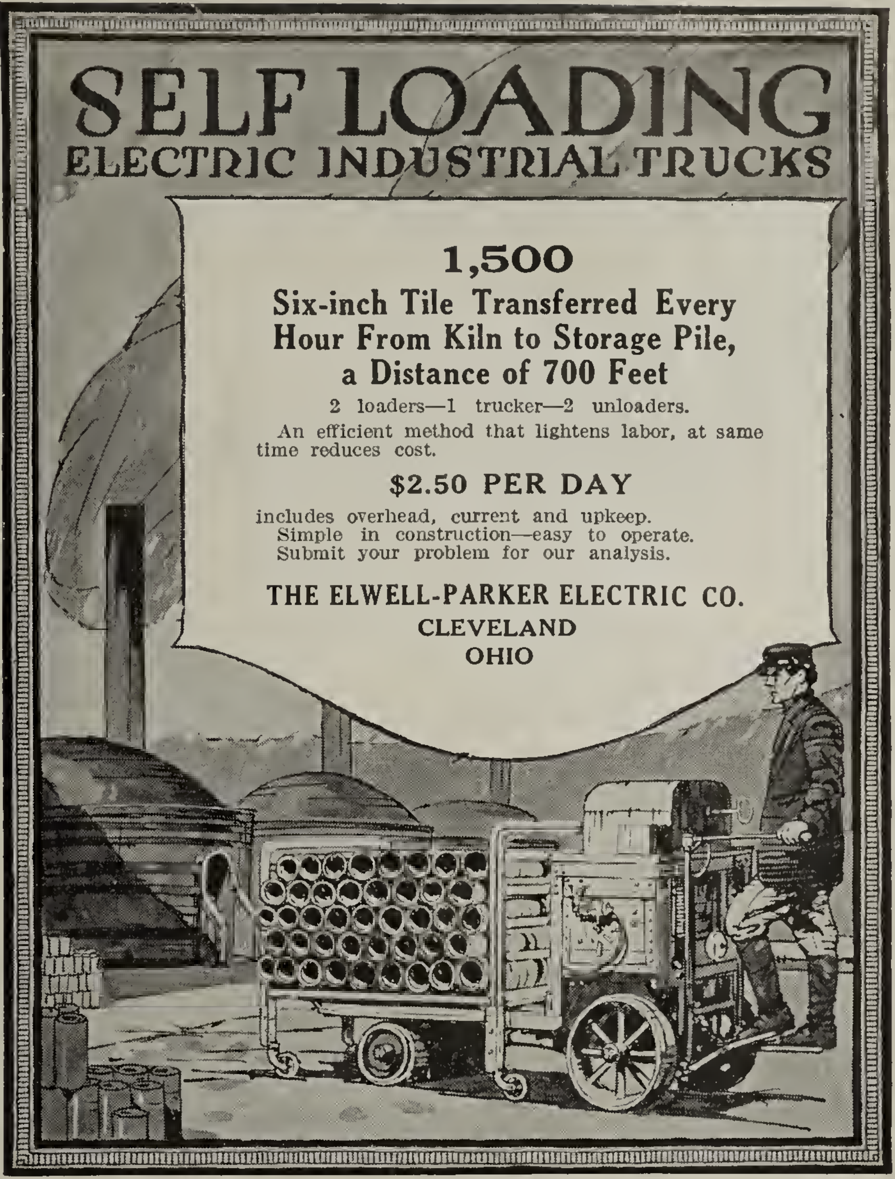
The Cincinnati Brick Club is making arrangements to be present in force at the annual convention of the face-brick manufacturers and dealers at French Lick, Ind., during the first week in December. The members have secured adjoining rooms and are looking forward to an enjoyable session. Every one of the brick concerns belonging to the club will make the trip, with two or more members from each making up the party, which will result in the Cincinnati delegation's being one of large proportions.

Emmet C. Howard, salesmanager for the Claycraft Brick Company of Columbus, Ohio, in speaking of conditions in the trade said recently: "Business with us has been quite brisk until the past four or five days, when it has been dropping off. Orders are still coming in fairly good volume and we have no special complaint to make. The month of November opened actively but a lull has come. There is a marked shortage of cars and also of labor in the yards. The tone of the market is generally satisfactory."

At the Cleveland (Ohio) offices of the Interstate Clay Products Company it was recently stated that there are orders on file unfilled calling for 1,383,000 pieces of hollow-tile, which is equivalent to 9,100,000 common-brick. The reason for this is the inability of the firm to get sufficient empty cars. This condition is getting worse rather than better. During the past month the following dealer-agents have been established by the company: Derr-Shaffer Sales Company, Akron; C. F. Miller, Bedford; Lininger and Bennett, Conneaut, Ohio, and G. M. West, Clarksburg, W. Va.

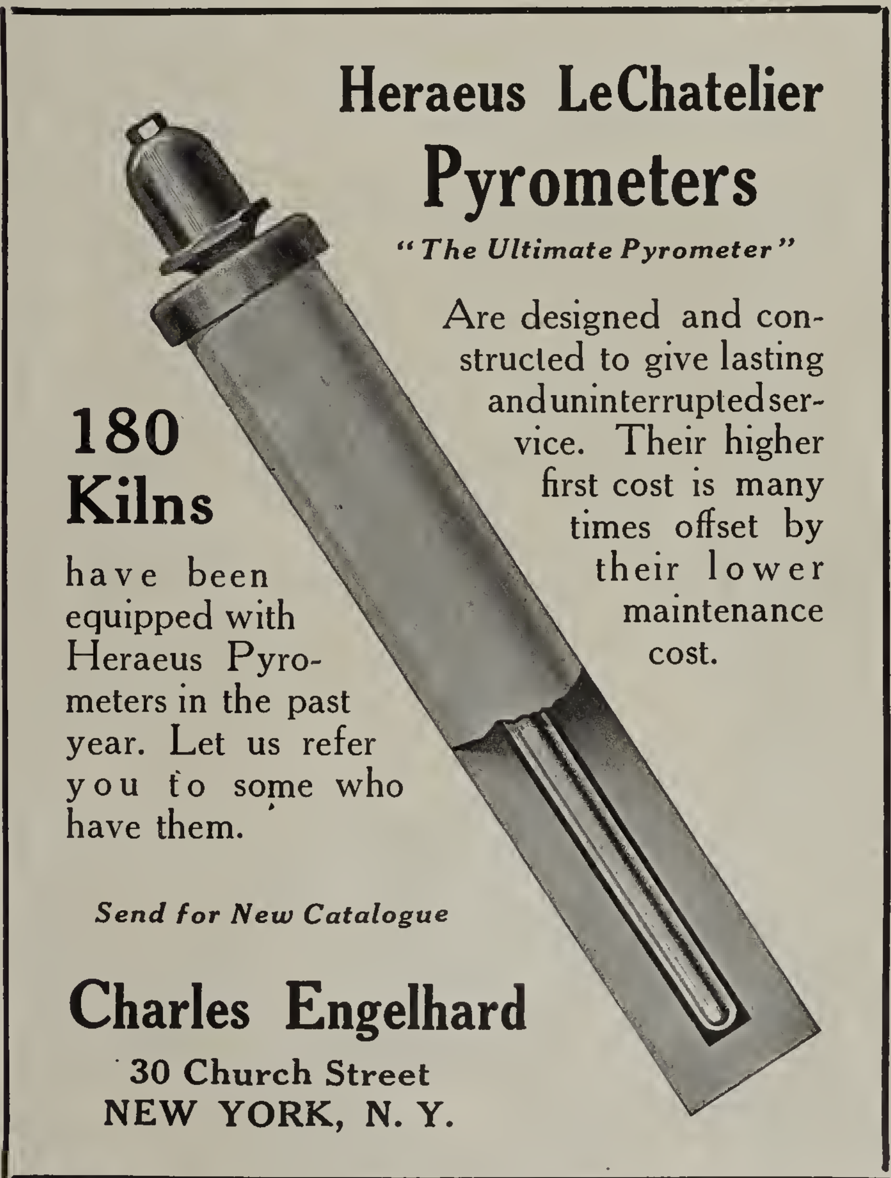
An unprecedented demand for common-brick at this time of year has brought about the unusual condition of an embargo on deliveries for ten days by the Barkwill-Farr Company, according to Salesmanager Robert C. Mitchell. This firm will continue to take orders, but will hold up deliveries until the contractors with work yet to be finished have been taken care of. This is believed to be the best plan, as the builders with work partially completed would be more inconvenienced than those who have not yet started operations. The demand for hollow-tile continues as strong as for brick, but deliveries will be kept up on this commodity.

The Ohio Paving Brick Manufacturers' Association, which has headquarters in the Hartman building, Columbus, has started a series of meetings to be held during the winter in order to line up things for the coming season. James R.



SELF LOADING
ELECTRIC INDUSTRIAL TRUCKS

1,500
Six-inch Tile Transferred Every Hour From Kiln to Storage Pile, a Distance of 700 Feet
2 loaders—1 trucker—2 unloaders.
An efficient method that lightens labor, at same time reduces cost.
$2.50 PER DAY
includes overhead, current and upkeep.
Simple in construction—easy to operate.
Submit your problem for our analysis.
THE ELWELL-PARKER ELECTRIC CO.
CLEVELAND
OHIO



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Pyrometers
"The Ultimate Pyrometer"
Are designed and constructed to give lasting and uninterrupted service. Their higher first cost is many times offset by their lower maintenance cost.
180 Kilns
have been equipped with Heraeus Pyrometers in the past year. Let us refer you to some who have them.
Send for New Catalogue
Charles Engelhard
30 Church Street
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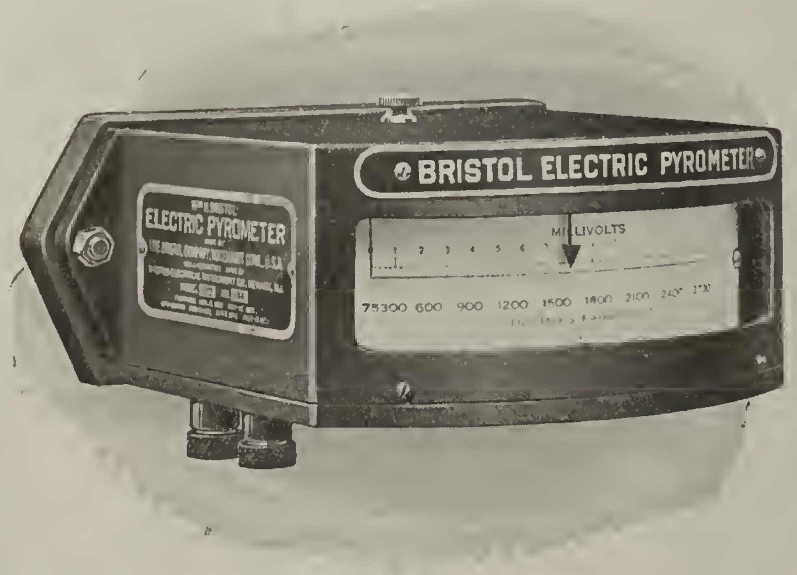

EQUIPPED WITH
WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S
ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. **Waterbury, Conn.**

Branch Offices: Boston New York Pittsburgh Chicago San Francisco

Every day is a day of rejoicing for the clay plant manager who uses

HETTRICK Red Stitched Canvas Belting

He rejoices because he does not know such belt troubles as "slipping" or "cracking"—and he realizes that his belts are bound to have long life, whether they are used for power transmission, elevating or conveying.

You, too, can have the same kind of satisfaction if you will just give the Hettrick Belt a chance to prove what it can do for you.

The Hettrick Mfg. Co.
TOLEDO, OHIO

Marker, formerly highway commissioner of Ohio, is commissioner. One of the meetings was held November 10th with about eighteen of the members present. Another meeting is being held November 21st. One of the important matters under consideration is the legislative program to be followed at the coming session of the Ohio General Assembly. The program is not yet ready to be announced.

As a direct result of the road building demonstration held at Terre Haute, Ind., and Paris, Ill., during the annual meeting of the National Paving Brick Manufacturers' Association in October, a tremendous number of inquiries, asking for all kinds of information, are now being received at the offices of the association in Cleveland, Ohio. These inquiries are coming from all parts of the country, from city engineers, city managers, paving contractors and others. H. H. Macdonald, assistant secretary, is kept on the jump answering all of this new correspondence. These letters are taken as the best indication of the interest aroused over the good roads propaganda and brick paving.

The cold snap which settled down on the Middle West November 14th struck Cincinnati along with the rest of the Ohio Valley, and served to unsettle building operations and brickmaking alike. In spite of the fact that the weather bureau accurately forecasted the change in the weather, few brick men were able to convince themselves that the change would be so sudden and so decided; but, none the less, November 13th was a fine, mild day, and November 14th saw snow on the ground and temperatures at or below freezing. A number of plants were considerably inconvenienced, and more or less lengthy suspensions of operation will probably result.

Many clay products manufacturers of Canton, Ohio, were compelled to change the type of fuel used in the burning of their product when, in the early part of November, the East Ohio Gas Company refused to further supply gas for commercial use, limiting its commodity to domestic use only. While the change comes at a period that is being characterized by an exceedingly acute coal shortage, yet it is understood that none of the manufacturers affected by the change will suffer to any extent, since they have been aware that the change was to be made for some time past. While a number of the clay products manufacturers have adopted coal for burning their ware, others have installed oil burning equipment for this purpose.

A meeting of representatives of many of the larger cities of Ohio was held at Columbus recently for the purpose of considering a plan of action to increase their revenue without doing away with the Smith one per cent. tax law. Practically all of the cities in the Buckeye State are short of funds and most of them have reached their limit of borrowing. This is largely due to the Smith tax law which has been keeping down the levy. As a result of present conditions, cities are hampered in improvements, especially street work and repairs. Bond issues have been resorted to but it is often difficult to have these issues passed by the electors as a large majority are usually opposed to approving large bond issues. The Ohio Paving Brick Manufacturers' Association is taking a prominent part in the movement to secure remedial legislation at the hands of the coming general assembly.

Oregon

In Portland, Ore., there is considerable discussion in the brick trade on account of the local brick recently accepted and then rejected for use on the new city auditorium. It was decided to use "foreign" face-brick in order to comply with the color specifications. This change is said to mean an increased cost to the tax payers of $3,600.

Pennsylvania

The Victor Brick Company has been incorporated at Philadelphia, Pa., with a capital stock of $130,000 for the purpose of manufacturing brick and other clay products. Its incorporators are F. R. Hansell of Philadelphia, George H. Martin and S. C. Seymour of Camden, N. J.

The Hazelton (Pa.) Brick Company is planning to build a number of modern brick dwellings for its workmen, operations to commence as early in the spring as weather conditions will permit. Plans for the buildings have been considered by the company and figures for the work are now being sought. Many additions to its plant are also being considered by the Hazelton company.

Plans are being laid to keep the factory of the Wilkes-Barre and Hazelton Brick Company, Hazelton, Pa., in operation thruout the winter. A large storage shed, which will hold enough clay to keep the plant in operation for a month, has been erected and an electric shovel has been installed in the pit. During mild weather the supply of clay in storage will be replenished and, in this manner, it is hoped that the plant may be operated thru the entire winter.

Rhode Island

The Barrington (R. I.) Steam Brick Company, whose plant was entirely rebuilt after a serious fire early in the season, is now making large daily shipments of brick. The new buildings are much better adapted for the work of brickmaking than the old ones and the output has been materially increased.

The fourth round of the season in the thirteen-chamber continuous kiln at the Ashaway (R. I.) Clay Works has just been completed. Each of the chambers holds 25,000 brick, making a total of 325,000 burned on each round of the kiln. The four burnings since the plant was started up six months ago under the new management with Firth Marsden as superintendent, make a total output of 1,300,000. Plans are being made for the erection of clay storage sheds which will enable the plant to continue operation during the cold weather.

Utah

Tests recently carried on by the city bureau of mechanical inspection at the University of Utah have shown that a hollow clay building tile that will stand the required load can be manufactured from the clays of that state. Such a tile has been developed at the Utah Fire Clay Company's plant, at Salt Lake City where, after a few changes had been made in the original design of the tile, a product was obtained that fully met the requirements. Arrangements are being completed by this concern to manufacture hollow-tile on a large scale to supply the demand that is bound to follow its admission into the building code of that city.

Washington

Addison T. Dishman, proprietor of a thriving brick yard in the Hangeman Creek valley near Spokane, Wash., has just purchased a handsome residence at Cannon street and Second avenue, Spokane. The consideration was a hundred acres of land near Marshall and some cash.

West Virginia

The Huntington (W. Va.) Clay Products Company has been organized with a capital stock of $100,000 to manufacture paving-brick and hollow building tile.

Avoid Annoying, Costly Leaks

in the boiler room, or on any flanged pipe line or connection in the plant carrying steam, hot or cold water, etc., by the use of

JENARCO

Sheet Packing

A gasket of Jenarco placed between any flanged joint will make that joint absolutely and permanently tight. No escaping of steam, no damaging or costly leaks, no annoying dripping of water. Obtain through your regular dealer, either in gaskets cut to exact size and shape required, or in sheets 36 in. wide, any length required, all standard thicknesses.

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
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Jenkins Bros. Limited, Montreal, Canada and London, E. C. England.

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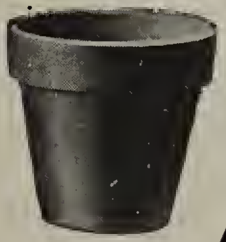

A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.

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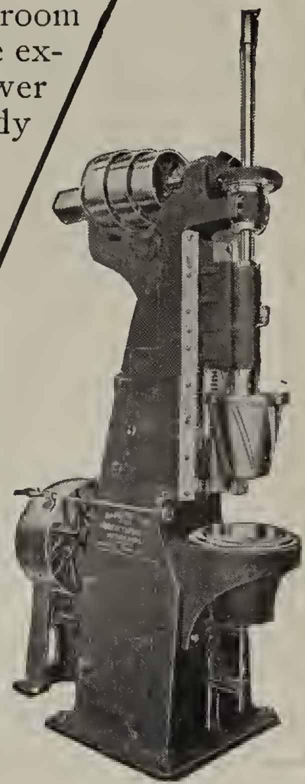
Detroit, Mich.

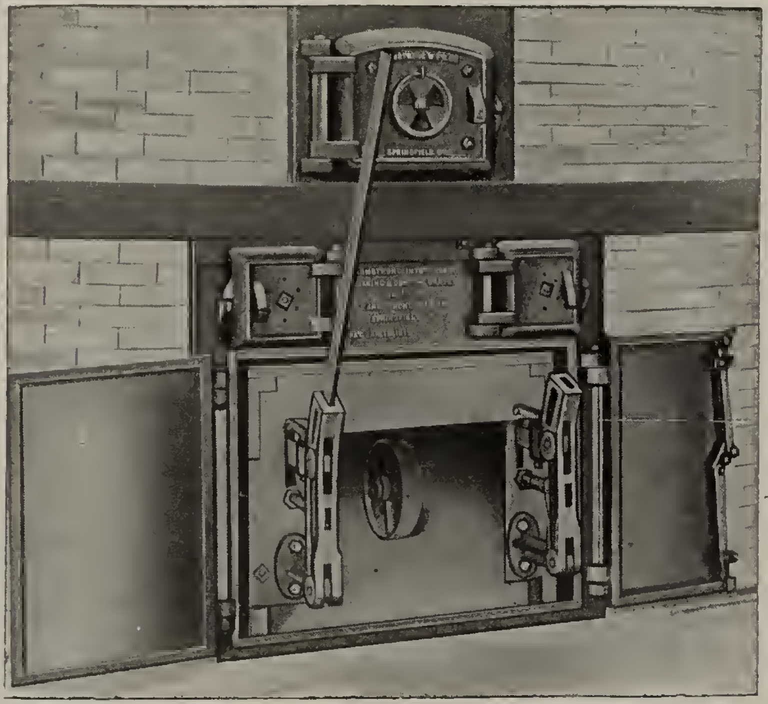


"Siroccofied" Yard of Claycraft Brick Co., Groveport, O.

"Sirocco" Fans

Improve conditions wherever installed. Let us tell you about them.

AMERICAN BLOWER COMPANY
DETROIT MICHIGAN
BRANCHES EVERYWHERE



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

New kiln construction in the western pottery territory this year has been exceedingly small compared with additions in past years. Not one new kiln has been erected in the East Liverpool (Ohio) district, and only one kiln for the general ware lines has been built in the Wheeling (W. Va.) territory. No effort is being made to place the idle plant of the former Ohio China Company at East Palestine, Ohio, in operation and nothing is being done with the old Brunt Pottery Company's plant in East Liverpool. A seven-kiln plant is idle at New Castle, Pa., while at Erwin, Tenn., only, has an entirely new pottery been started. This property, however, will not be ready for operation until late in December, altho moldmakers are now at their benches.

The first of the year will see the Southern Potteries at Erwin, Tenn., completed and ready for the manufacture of plain and decorated high-grade semi-porcelain dinner ware, if the plans of the builders are realized. This will be the first dinner ware plant established in the South, according to E. J. Owen, vice-president and general manager. The company is capitalized at $350,000 and will have a seven-kiln plant costing $70,000. Three bisque kilns, eighteen feet in diameter, four glost kilns, sixteen and one-half feet in diameter, and three decorating kilns are being built. The building, one-story, of brick construction, has an area of 85,000 square feet.

There is reason for believing that Charles C. Ashbaugh, president of the West End Pottery Company at East Liverpool, Ohio, will succeed T. A. McNicol as president of the United States Potters' Association when that organization meets in annual convention at Washington, D. C., in December. Mr. Ashbaugh was secretary of the organization for several years and was succeeded by Charles F. Goodwin, the latter now also being treasurer of the association.

A new tile and brick addition, one-half of which will be used as an office and the remainder for a packing department, is being erected by the Novelty Clay Forming Company at Newell, W. Va. The construction of a new kiln, which will increase the capacity of the plant from two to three kilns, is under way. The estimated cost of the improvements is $2,000. The new addition is expected to be ready for occupancy not later than Nov. 15th.

Trenton potters have contributed fifty dollars to the National Brotherhood of Operative Potters' fund for the aid of tubercular victims of the trade. This money is already being devoted to the saving of the lives of men who have been employed side by side with those who are still in perfect health and it is anticipated that great assistance will be rendered by the money being collected in preventing death.

At a cost of $20,000 the Knowles, Taylor and Knowles Pottery Company, at East Liverpool, Ohio, is erecting a new office and sample room building which will be occupied about the year end. Red rough-textured brick is being used for exterior construction. When completed it will be the largest individual pottery office building in the East Liverpool district.

C. B. McCoy, administrator of the estate of the late Charles F. Gosser, president of the Pope-Gosser China Company of Coshocton, Ohio, has asked the courts to interpret the will of the deceased which disposes of an estate estimated to be worth more than $300,000. The court has been asked to instruct as to the disposition of the stock in the Pope-Gosser China Company, some of the heirs demanding 50 shares which Mr. Gosser had specially provided in his will should be claimed by the executor as part of the estate, and that it should be placed upon the inventory.

New dinnerware lines for the 1917 trade are being arranged for by manufacturers thruout the country. Plain shapes predominate. New effects in border patterns are in heavy request. Six new dinner shapes are now being modeled for western manufacturers and these will be shown in the latest decorations procurable.

An immense pottery plant is soon to be built in Kalamazoo, Mich., by the Kalamazoo Manufacturing Company, a newly incorporated concern, with a capital stock of $350,000. The erection of the plant is, according to a report received, to start immediately.

⁂

Freight Tariff News from the Capital

The Interstate Commerce Commission has allowed the National Fire Proofing Company reparation in its case against the Pennsylvania Railroad Company, et al. This reparation, which totaled $1,497.79, was allowed because of an unreasonable rate applied on sixty-eight carloads of hollow building tile, shipped from Hobart, Ind., to Memphis, Tenn., during the period from October 14th, 1913, to May 16th, 1914.

The commissioners have also allowed the Kankakee Brick and Tile Company reparation amounting to $318.32, against the New York Central, et al. The reparation was allowed because of excessive rates applied on twenty-six carloads of hollow building tile forwarded from Kankakee, Ill., to Rogers Park, Ill.

The commission has suspended until April 17th, 1917, the operation of supplement No. 17 to Louisville and Nashville, I. C. C. tariff No. A-11902. The suspended supplement names an increased rate on brick, carloads, from Sibleyville, Ala., to Atlanta, Ga., the operation of which was suspended from June 19th to October 17th, by an order previously entered in the same docket.

The commission has also handed down a decision in the case of the Robinson Clay Products Company of Akron, Ohio, against the Pennsylvania, et al., in which they say in their syllabus:

"Thru rate charged for the transportation of a carload of fire-brick from Parrel, Ohio, to Clayton, N. C., found to have been unreasonable to the extent that the rate charged for the haul from Richmond, Va., to Clayton, exceeded eleven cents per one hundred pounds. Reparation awarded."

In a decision handed down during the past few days the commission in its investigation into the clay rates of Kentucky and Tennessee says:

"Proposed increased rates on clay in carloads from producing points in Tennessee and western Kentucky to official classification territory found justified."

In handing down their opinion in case No. 8452 of the Robinson Clay Products Company, Parral, Ohio, against the

Tycos
FERY RADIATION
PYROMETERS
Eliminate Guesswork from the Manufacture of All Products requiring extremely high Temperatures ★ ★ ★ ★
We Manufacture - Thermometers and Instruments covering every Temperature requirement in Metallurgy and Chemistry
A Catalog Cheerfully Sent Upon Application
The Taylor-Cambridge Division
Taylor Instrument Companies
Rochester, N.Y.

The House of Taylor

IN THE HEART OF THINGS

600 Rooms
400 Baths

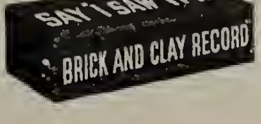
Hotel Martinique
Broadway, 32d St., New York

125 pleasant rooms, with private bath, facing large, open court
$2.50 Per Day

157 excellent rooms, with private bath, facing street, southern exposure
$3.00 Per Day

Also attractive rooms from $1.50.

The restaurant prices are most moderate. Equally convenient for amusements, shopping or business. One block from Penna. Station.


SAY "I SAW IT IN BRICK AND CLAY RECORD"

Pennsylvania Company, et al., the commissioners in their syllabus say:

"Thru rates on fire-brick in carloads from Parral (Canal Dover), Ohio, to Wilson, N. C., found unreasonable to the extent that the rates charged for the hauls from Richmond and from Suffolk, Va., to Wilson, exceed the rate contemporaneously applicable on pressed, paving and building brick from and to the same points. Reasonable rates prescribed for the future and reparation awarded."

The Kansas Buff Brick and Manufacturing Company, Buffville, Kan., has filed a brief with the commission in its case No. 8961 against the Missouri Pacific and other roads.

The brick company in this case is complaining against the unreasonable rate applied on fourteen carloads of common-brick shipped from Chanute, Kan., to Jefferson City, Mo., in June, July and August, 1914. Reparation is asked.

The commissioners have suspended until May 12th, 1917, the operation of C. J. Pierce, Agent's I. C. C. Tariff No. 146. The tariff provides for the cancellation of carload commodity rates on clay and other commodities from certain points in New England via rail and lake to Duluth, Minn., and other destinations.

FINDS TENNESSEE-NORTH CAROLINA SEWER-PIPE RATES UNREASONABLE

The commissioners have just handed down an opinion in the case of the Chattanooga (Tenn.) Sewer Pipe and Fire Brick Company against the Southern Railway, et al. In their syllabus in this case they have the following to say:

"1. Rates on sewer-pipe in carloads from Chattanooga, Tenn., to destinations in North Carolina found to subject complainant, its traffic and the city of Chattanooga to undue prejudice and disadvantage in comparison with the competitors shipping between points in North Carolina on intrastate rates prescribed by the state.

"2. Further hearing ordered to determine what would be reasonable interstate rates."

In its complaint filed with the commission on December 4th, 1914, the Chattanooga concern alleged that the rates in effect on sewer-pipe from its city to North Carolina points were discriminatory and unjust, and asked that reasonable rates be put into effect. It also stated that it was in keen competition with a manufacturer of sewer-pipe at Terra Cotta, N. C., for the business of North Caroline, and that the rates they had to pay made the competition almost impossible.

COMMISSIONERS WILL INVESTIGATE CAR SHORTAGE

The Interstate Commerce Commission has announced that it will undertake a general investigation of the car shortage situation and, in accordance therewith, an investigation is already under way. In announcing the commencement of this work the commission said in part:

"Formal and informal complaints having been filed with the commission from all sections of the country concerning the supply, exchange, interchange and return of freight cars, together with the rules, regulations and practices relating thereto.

"It is ordered that the commission, upon its own motion, enter upon a general investigation covering all sections of the United States concerning the supply, exchange, interchange and return of freight cars, and all rules, regulations and practices relating thereto, with the view of issuing such orders as the commission may deem appropriate."

In accordance with this order some hearings have already been held and others will be held in the near future at various points in the United States.

Why Waste Your Money ?

How do you *know* your watchman or burner is steadily making his rounds? You *believe* he is, but do you actually know the money you pay him is providing the safety you intended it shall? How valuable would be a nightly record of his work. When $40 will give such records as these will more than double the efficiency of your watchmen, can you still be content to *guess?*

Let us tell you how this watch-the-watchman system works; never failing and unquestionable. To know this costs you nothing.

HARDINGE BROS., Inc.
1760 Berteau Ave. Chicago

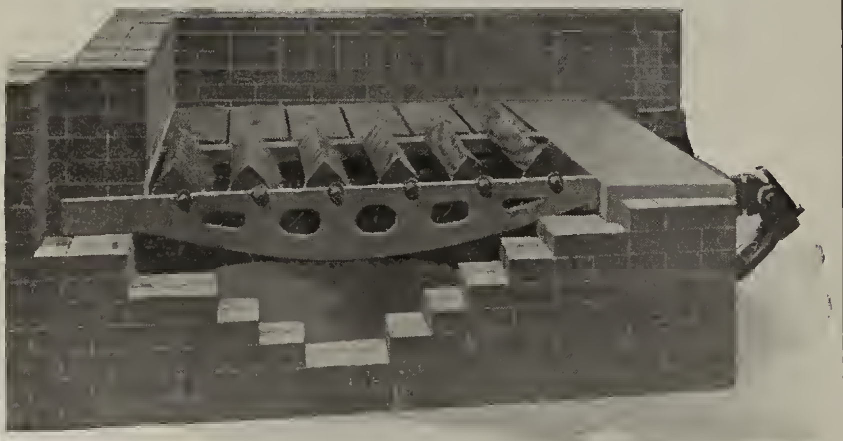
Manufacturers Portable Watchmen's Clocks. Energetic Representatives Wanted for Unoccupied Territory.

CYCLONE
Boiler Grates
Sold on 90 Days' Trial

These are the six points of superiority:

1. Even distribution of draft.
2. No fuel gets into the ash pit.
3. Locks level.
4. Burns cheap fuel.
5. No fingers to burn off.
6. Impossible to warp.

Ask us to PROVE it.



Cyclone Grate Bar Company
BUFFALO, N. Y.

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

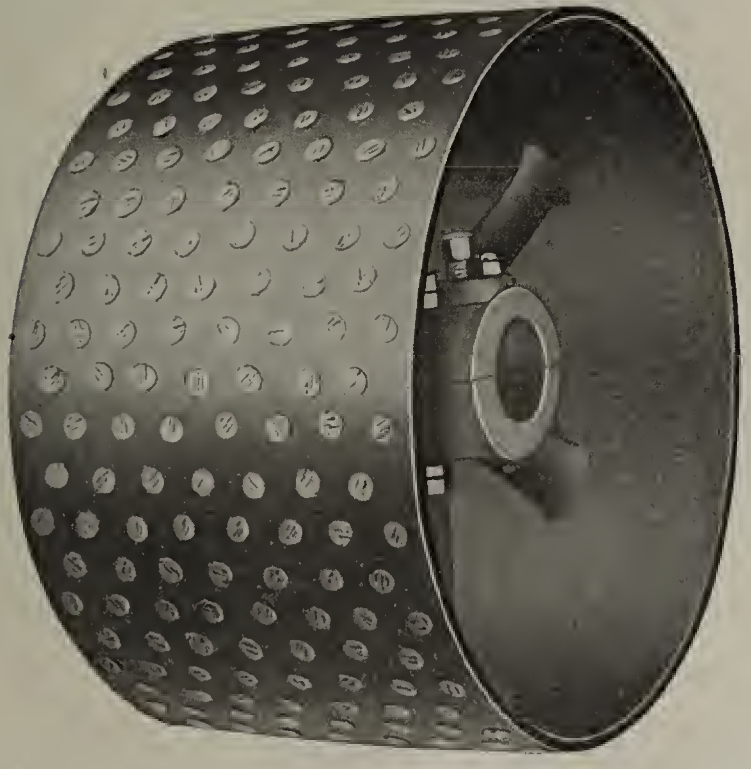
Cork Insert Pulleys

The advantages of using cork inserts are: Economy thru the productive use of all the power, uniform speeds and steady operations whatever the conditions. These advantages are due in the first place to the very great frictional efficiency of cork. It is one of the most efficient substances known for frictional purposes.

Another very important fact is that cork is non-absorbent and a non-conductor of heat. Being a non-absorbent, if oil, water or other liquids get on the surface they do not soak in. Consequently they can be easily rubbed off without leaving small particles sticking to them as is the case with metal. The result of this is that the cork is wiped entirely dry by action of the opposing surface, while iron, unless the pressure is very heavy, will be coated with a film of the liquid which serves as a lubricant and allows the opposing surface to slide across it. By its very nature the cork is not affected by oil to anything like the extent that many substances are. The only thing that will really put the cork out of business is a very heavy grease, graphite or some sticky substance which has sufficient cohesion to coat the surface of the cork as well as the surrounding material.

Being a non-conductor of heat, moisture will not condense on the surface of the cork as it will on a piece of metal, if it is allowed to stand in a damp place where the temperature is subject to change. This is a matter of very considerable importance in many manufacturing establishments and is especially true in brick plants. We have known of drives where an iron pulley was located alongside of a window which was opened from time to time. The moisture thus allowed to condense on the surface of the plain pulley made the belt slip so badly as to cause serious trouble in getting the machinery started even tho the pulley was plenty large enough to run the drive satisfactorily when the moisture had been dissipated and the pulley warmed up enough to avoid its further formation.

Cork inserts operate best with a clean, flexible belt.



Heavy Duty Cast Iron Cork Insert Pulley. The Cork Prevents Slippage and Waste of Power

A Gas Producer

That gasifies more than 40 tons of coal in 24 hours must work uniformly.

Working uniformly it must produce good gas.

With good gas in sufficient quantity the kiln will be efficient and economical.

This is the final result we have attained with the

R. D. WOOD & CO.
Mechanical Gas Producer

For small installations we recommend our Hand Stoked Producer

R. D. WOOD & CO.
PHILADELPHIA, PA.

YOU

Are Facing Rising Costs

OF

Coal and Labor

Cost sheets have been gone over, item by item. **Labor costs cannot be cut** without sacrificing **QUALITY** and **QUANTITY.**

The other big item is **COAL COST.** Head-Burner says it cannot be cut. An average of past records backs him up. Experience says that pushing him too hard means soft ware and over-burned tops.

Is There Any Other Way Out?

No time to experiment with fool ideas—patent kilns—a good many of them have been bunk. A minute please?

It has been several years now since YOU first heard the **Hook Down Draft System** mentioned—**always favorably.**

Not only surviving but steadily gaining popularity. What is it? Let us tell you.

We frequently CUT BURNING TIME ONE-HALF and REDUCE FUEL BILLS ONE-THIRD. **A good interest guaranteed on your investment.**

It doesn't cost much to remodel old kilns to this type.

New kilns the Hook way generally cost a little less than other kilns of equal capacity and thickness of walls.

When you write—today—don't forget to give us the size of your kilns, the kind of ware you make and your present burning time and fuel consumption.

Our estimate of what we can do for you, based entirely upon what we have done for other clayworkers (we'll tell you who they are) will be the answer to your problem.

HOOK PATENT KILN CO.

Spring and High Streets
COLUMBUS, OHIO

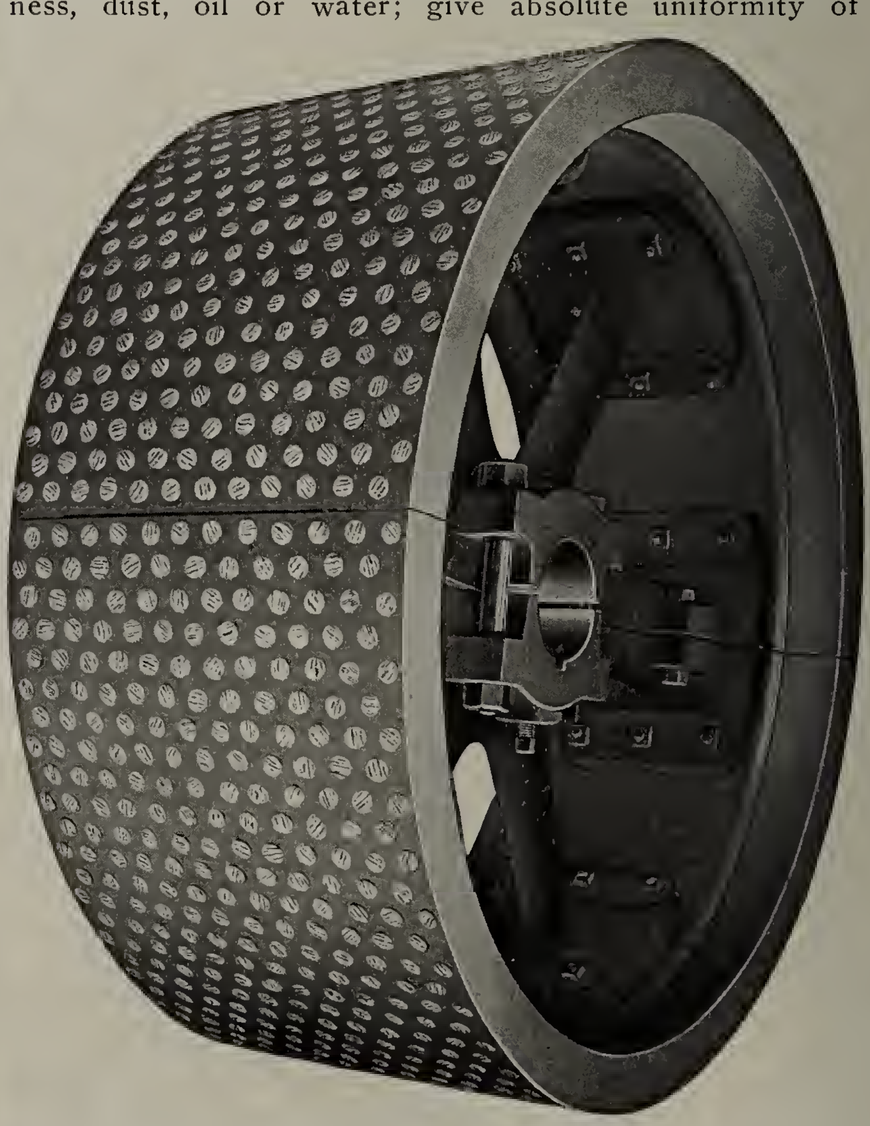
Kiln Bands, Grate Bars and All Accessories

The use of belt dressings, in the ordinary meaning of the word, is not recommended as they merely form coatings over the belt and the pulley and give the drive the efficiency of the dressing. Now, cork is much more efficient than any belt dressing, and the result of this kind of treatment is to reduce the efficiency of the cork drive. In many plants where dusty conditions prevail this is a very serious matter as the sticky belt dressing collects the dust and forms a layer on the surface of the belt which sometimes flakes off and gives an uneven surface. This makes the drive worse than it would be without the belt dressing. In making this statement reference is not intended to the kind of dressings which are necessary to lubricate the belts to keep them flexible, but dressings in the ordinary sense in which they are used as a material to be rubbed on the surface to increase the friction.

Cork, as we know it, is in the form of minute cells filled with air, the cell walls being composed of very strong cork fibre. In its natural state the cork fibres give little support to each other and it is, therefore, possible to abrade them even with the finger nail. This difficulty has been overcome by putting the corks in place under heavy compression which forces the cork walls together and makes a dense substance in which one cork fibre supports the next. This produces a compact material which will resist abrasion to a remarkable degree. Altho the Cork Insert Company is continually handling the hardest drives to be found anywhere, it is the rare exception that a pulley is obliged to have the corks replaced. Replacement, however, is a simple matter where it is necessary and can be done without removing the pulley from the shaft—provided that there is sufficient room around the pulley to enable a man to work there.

The products of the company are cast iron cork insert pulleys, paper cork insert pulleys, steel cork insert pulleys, wood rim iron center cork insert pulleys, brake linings, clutch facings, clutch discs, clutch blocks, friction washes, slipping tensions, friction wheels, etc., with cork inserts, and guaranteed frictional devices for use wherever great efficiency or a uniform tension is necessary.

A summary of the advantages shows them to be exceedingly efficient, very durable, not affected by dampness, dust, oil or water; give absolute uniformity of



Wood Rim Cork Insert Pulley. The Cork Insert Is Not Affected by Oil, Dust or Moisture operation whatever the conditions and improve quality and increase output. Cork insert pulleys do away with the need of belt dressing, operate at low belt tension, reduce strain on belts and bearings, which of course reduces cost of upkeep. Cork insert brakes, clutches and tensions operate with less pressure maintaining adjustment, do not glaze and will run satisfactorily in oil if necessary.

These pulleys have been supplied to clayworkers for some years by the Cork Insert Company of Boston, Mass., and many letters referring to the satisfaction given are available, of which the following is a fair sample:

"In 1913 I installed four-inch diameter, 5-inch face cork insert pulley on 5 HP. motor going 1,700 rev. per minute, operating Bonnot reciprocating cutting table. This pulley has and is giving the best of satisfaction. At the high speed this motor runs I have not been able to notice much, if any belt slipping. I consider this a very good pulley and expect to use more of them in time. Yours very truly,

J. Menefee, Monessen Brick Works.

Lynn B. Dudley—Newly Appointed Advertising Manager for Federal Motor Truck Company

New Advertising Manager for Federal

Lynn B. Dudley has been appointed advertising manager of the Federal Motor Truck Company to succeed George W. Cushing. Mr. Dudley is well qualified to take up his new work, having had twelve years' experience in the editorial and advertising departments of newspapers, and for three years has been connected with Campbell-Ewald Company, advertising agents.

Mr. Dudley has specialized in automobile, gas engine, and motor truck accounts, and for sometime has had supervision of the agency account of the Federal Motor Truck Company.

Owing to his close association with the Federal Advertising Department, and the fact that he has an intimate knowledge of the plans of the motor truck company, Mr. Dudley was selected for the position.

The Federal company is anticipating a greatly in-

Federal Truck Loaded with Sewer Pipe

"We have been using the Gandy Belt in connection with our plant for some time, and it has given us very good results. We believe it is less affected by the dust of a cement mill than any other class of belts."

Dust is one of the worst enemies that a good belt encounters in its daily duties.

When it gets between the pulley and belt, it becomes grit, and with the continual pull and traction takes its toll by shortening the life and service of the belt.

GANDY BELTS, however, are an exception. True, dust affects them, but in comparison with other types, the effect upon a Gandy is a minor consideration. As proof of this note that the cement industry is one of the biggest fields for Gandy Belts.

Of course, all belt users do not encounter the dust problem, but a belt that will stand up under such unusually severe service will surely make good in ordinary use.

Let us tell you just how Gandy Belts will save you money in your plant. Full information upon request.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

ANCHOR POST
CHAIN LINK WOVEN STEEL
FENCE

is unclimbable and practically indestructible. It affords the utmost possible protection to your property both night and day.

When a factory is protected by an Anchor Post Fence everybody has to use the gates. Lock them and your property is secure from the depredations of thieves, tramps and idlers.

Galvanizing the posts, fabric and all fittings and parts of our fences below ground and above by the hot-dip spelter process, a practice established by us many years ago, is an effective protection against rust.

Write now for our catalogue F and learn why the majority of Modern Factory Fences are Anchor Post Construction, and why it is the one factory fence that will afford you the maximum protection at the minimum annual cost.

Anchor Post Iron Works
165 Broadway New York

creased business during the new year, and will bring out two new models to fill the increasing demands for trucks in every line of business. The production of the company has been doubled during the past year; new buildings being constructed to increase the manufacturing facilities of the plant.

It is also announced that, while the new structures were only recently completed, plans are now under way to construct another building in which a part of the assembling department will be located.

So great has been the demand from Federal dealers during the last few weeks that altho the production of the company has been doubled, it is now imperative that more trucks be manufactured during the next year than were contemplated. For this reason the additional work is being rushed.

Mr. Dudley says it is a source of satisfaction to the officials of the Federal company that 62 per cent. of all orders received are from manufacturers, jobbers and other business men who already have Federals in service.

Steam Shovel Chains

A chain that hasn't the stamina to give service for long periods of time, should not be used on steam shovels, no matter what the cost.

Can you imagine any power transmission appliance that is more severely taxed than the steam shovel chain? It must not only stand the strain of transmitting "big power" to the boom and dipper, but it must also have a high factor of safety in order to withstand the constant jerks and jars.

If the chain snaps under tension, the probability of injury to the operator and laborers is serious, and, of course, the cost of repairs and time lost during the time required to weld or buy and string a new chain is important.

The Woodhouse Chain Company of Trenton, N. J., manufacture a wonderfully stout, tough chain. Under excess stress the chain elongates rather than snaps. A more or less prominent clayworker in Ohio made the remark that in the clay industry the chain had earned the title of "Brickhouse." The Woodhouse chain is famous wherever the big power shovels are used.

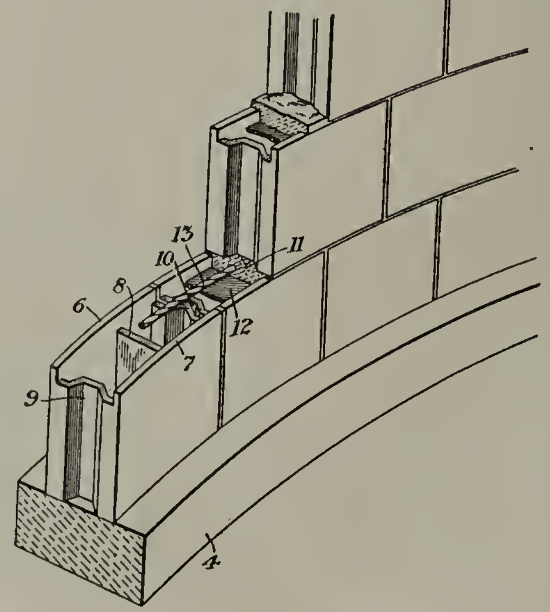
Silo Block

The Southern Pipe and Culvert Company of Macon, Georgia, are selling the state rights to manufacture a new type of silo block, which can also be used advantageously for wall construction, altho the block type was originally developed solely for silo construction.

Heretofore silo blocks usually had the ducts or openings horizontally disposed, forming connecting and circulating air chambers that extend the entire circumference of the structure, thereby affording little in the way of insulation.

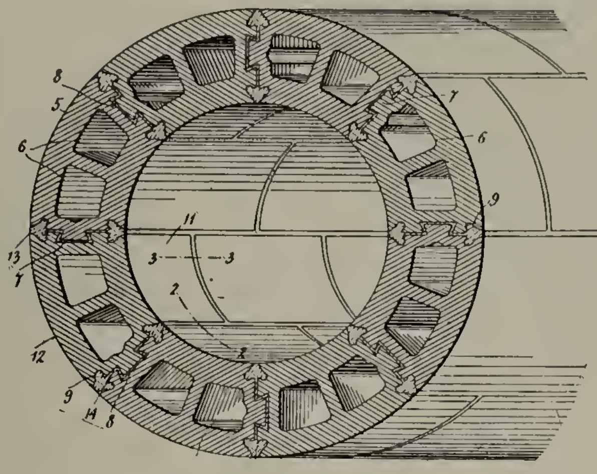
In the Ajax block the openings are vertically disposed, thus providing unit dead chambers in each block, inasmuch as corrugated cardboard plate is used to separate each block vertically until the mortar sets (shown in cut).

Reinforcement is obtained by the use of a steel rod



Note the Tongue and Groove End Joints Which Seal and Lock that is embedded in the mortar and extends the entire circumference of the structure.

Note also the tongue and groove end joints on the Ajax block which lock and seal, as against the plain built joints on the old block. It is very difficult, if not impossible, to secure a tight joint in the old form, while the difference in strength is apparent.



A Section of Sewer, Composed of the Ajax Segmental Sewer Block

A new segmental sewer block patent is also owned by The Southern Pipe and Culvert Company. It will be described later.

Producer Gas

For many years wood was used almost exclusively for the burning of clay products and it is recognized as an ideal fuel for this purpose. Its chief advantage is a long, soft flame which produces comparatively uniform results in the kiln. However, with the rapidly decreasing amount of this fuel available and the consequent increase in price, there are very few plants in America using it at the present time.

Natural gas has been tried in some sections, but aside from the uncertainty of its flow, it has not proven entirely satisfactory because it gives too intense and short a flame. It is believed, however, that the main reason that natural gas is not more generally used is because the fields are being rapidly exhausted.

Inasmuch as the majority of the best clayworking sections of the country are located in close proximity to the soft coal fields, soft coal has come into general use and in most instances has been used for direct firing. There are certain objections to this, however, among them being the difficulty in getting a coal that is low in sulphur and ash and which at the same time burns with a long, steady flame.

In view of the unsatisfactory results in burning many experiments have been made, but none of them have proven nearly so satisfactory as those that have to do with the use of producer gas.

There is nothing mystic about producer gas, but on the contrary it is a very simple operation if the proper installation is made. Producer gas is being made from ordinary grades of coal and it has a heat value of from 140 to 160 B. T. U.'s per cubic foot, which is about one-sixth that of natural gas. The flame of producer gas is long, slow and lazy and is, therefore, ideal for the burning of clay products. It yields an exceedingly uniform quality of product, avoiding those irregularities of over-burning and under-burning which are so common on many clay plants.

The clay-products manufacturer who is using producer gas is far more independent than one who is burning by direct coal fire or using any other kind of fuel, because a good gas producer can be found which is capable of handling any of the ordinary grades of Bituminous coal.

It is customary to burn the producer gas in "eyes" similar to those used in coal or wood firing. The gas and the necessary air are mixed in this chamber, but the real combustion occurs at or near the point where the mixture enters the kiln. The number of eyes used depends entirely upon the size and shape of the kilns and the way in which they are built. Each eye is provided

What More Could Mr. Biglow Have Said?

One of the largest producers of drain tile in America is located at New London, Ohio—The E. Biglow Company. And not only their size, but the quality of their ware and their readiness to adopt modern labor-saving equipment have all together given this company their reputation. Several years ago they decided that their problem for removing their clay would be best solved by installing the

BUCKEYE CLAY DIGGER

Now—after years of use, Mr. E. O. Biglow, president of the company, made this statement when asked what the Buckeye had accomplished for them. **Note this well:**

"We have found the digger a great saving in time and the cost of obtaining the clay, and the preparation of the clay is especially better.

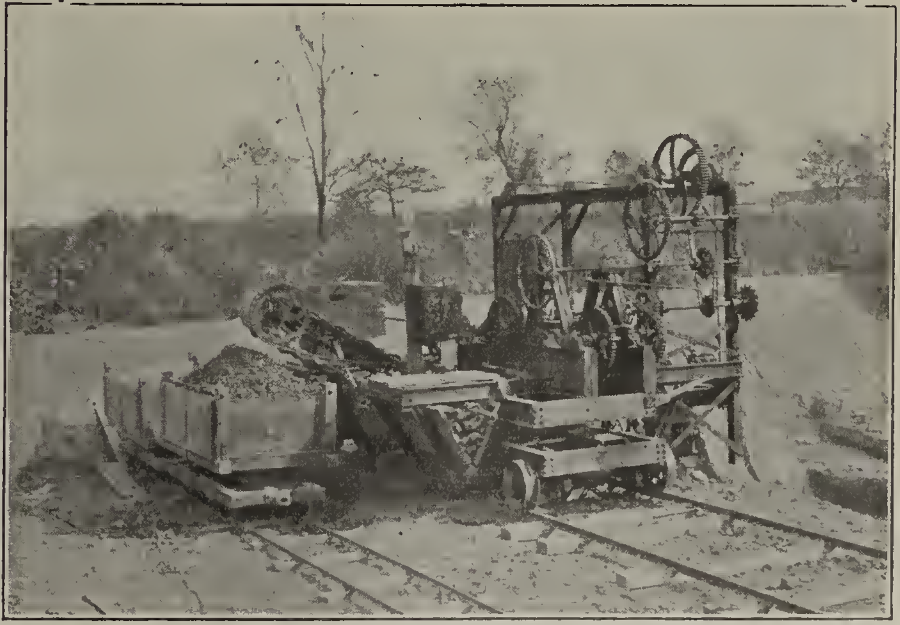
"It cuts the clay up fine and mixes the bank from top to bottom. We also find that the clay dug in this way will run better from the machine and make better tile and also burn easier and more even.

"We operate the digger with two men, one for the digger and the other to run the locomotive; this machine will dig about one cubic yard in a minute and a half.

"The repair bills are light considering the kind of work and the condition under which it works."

Why don't you find out what the BUCKEYE will do for *you?* Ask for our book "Digging Clay for Profit" and learn about this remarkable machine. It can be furnished for either electric or gasoline power.

THE BUCKEYE
TRACTION DITCHER CO.
FINDLAY, OHIO



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

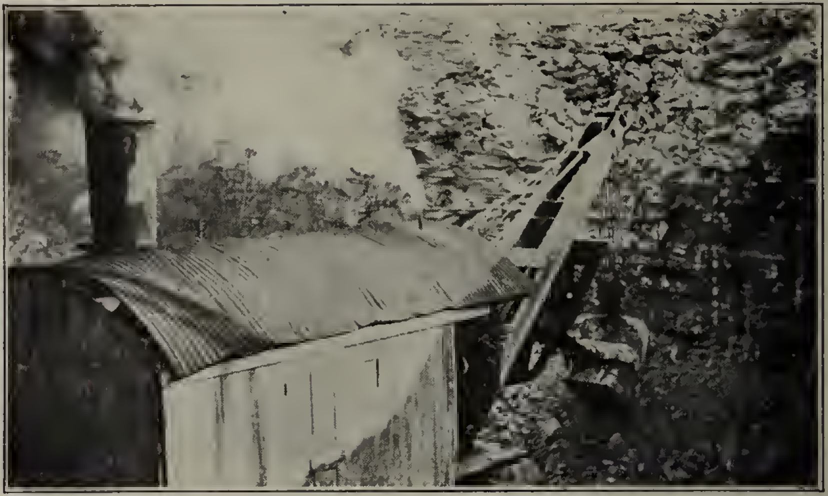
Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH



Thew Shovel Burrowing Into the Hard Shale at the Pit of the Streator (Ill.) Clay Manufacturing Company

with a valve so that the combustion is at all times under complete control. Gas fires are absolutely clean at all times.

The particular advantages to be found in the use of producer gas are greater economy and output, a more uniform product and reduction in labor cost, because of the concentration of the coal at one point and much lower cost for repairs to kilns.

R. D. Wood & Company of Philadelphia, have during their thirty years' experience had the opportunity to install gas producers in many clay plants and this experience is naturally of great value to any clay-products manufacturer contemplating the installation of producer gas. They have perfected a stirring producer which is particularly recommended for use in plants of large capacity and with this machine any coal may be used. They also are continuing to build hand-stoked producers for smaller installations. Because of their having so many successful installations in clay plants the information which they can supply to clay-products manufacturers is of great value.

Down in the Hole

Digging and dumping all day long, a Thew steam shovel is burrowing itself almost out of sight in the hard shale pit of the Streator Clay Manufacturing Company at Streator, Illinois.

The shale is hard and requires dynamite to loosen up the bank, altho the shale is not shot down.

In the illustrations are shown the shovel actually digging and finally dumping the load in side dump cars at the bottom of the track incline.

The Beighlee

This, a comparatively new Pyrometer in the clay field, so radically departs from the usual that it is very distinctive.

Altho there are many points of construction that are different or additional, it is probable that the following are the most notable departures from other standards.

The Same Shovel Illustrated Above Is Here Shown Dumping Its Load Into the Clay Car

Beighlee Pyrometer

It is so big (eighteen inches in diameter and approximately eighteen inches high) that it permits of an exceedingly fine and rugged construction. The parts are not cramped and nothing of even the smallest value is slighted. This also permits of an eighteen-inch record paper which, of course, due to its size, reduces the amount of any recording errors. This in particular is valuable.

The elimination of the cold junction error is nothing more nor less than a triumph in science, and is recognized as such in the scientific world. Its value to the clayworker can be summed up by saying that sudden variations in atmospheric temperaaures—or variations between winter and summer temperatures are automatically cared for and no errors results in Beighlee instruments.

The third big point is the high internal resistance of 1,200 ohms, which in itself practically eliminates other resistance errors.

Facsimile of the Goodyear Catalog

These points (and others) are the reasons for the almost instant recognition and success of Beighlee Pyrometers in the steel industry and lately in the clay industry.

Goodyear Encyclopedia

A new loose leaf book, describing and illustrating every conceivable class and kind of mechanical rubber goods is issued by the Goodyear Tire and Rubber Company of Akron, Ohio.

For clay plants the Goodyear company are strongly advocating their "Blue Streak" brand of rubber belting, altho many other kinds of belts are sold, depending entirely on the conditions and the work to be accomplished.

Every other possible kind of a mechanical rubber appliance from rubber hose, packing, etc., down to valve seats, are manufactured.

Conforming with a plan to make their catalog a veritable text book on rubber appliances, the new catalog has a fund of general information on belts, including the care and selection of proper belting.

Lakewood Supremacy

did not come to us by accident, but it was won because it was the natural outcome of our eighteen years efforts to build the very best car equipment that could be made.

More than 100,000 Lakewood cars have been put in service in this period—and many of the best customers we have today are those who first bought Lakewood equipment years ago.

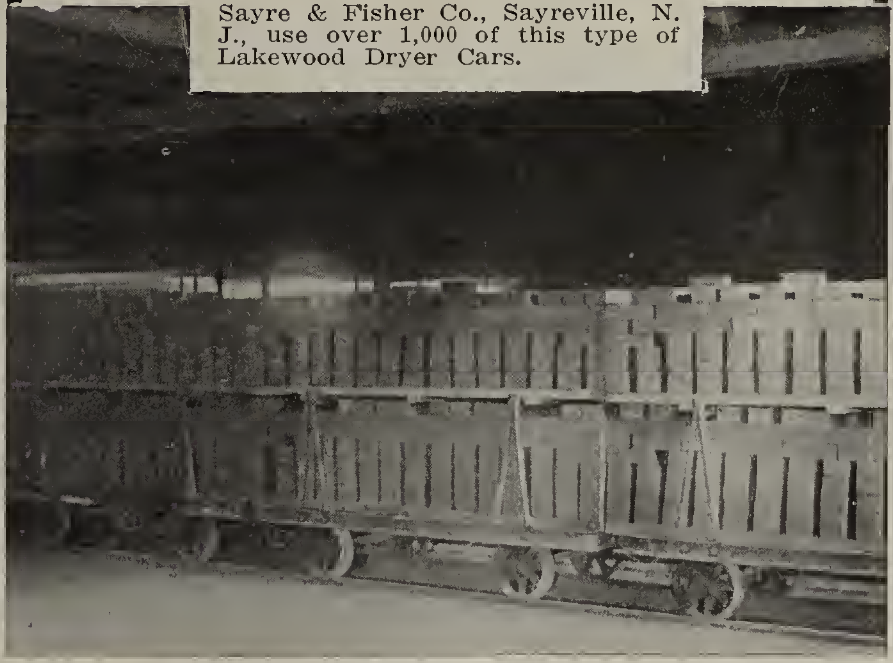
We make 400 different designs of dryer and dump cars, also hand and electric transfers, clam shell buckets, kiln bands, turntables, portable track and switches, and steel pallets.

We can build you any kind of cars or car equipment to your own specifications, if you desire.

"Let Us Be Your Car Department?"

Lakewood Engineering Company

Cleveland, Ohio



Sayre & Fisher Co., Sayreville, N. J., use over 1,000 of this type of Lakewood Dryer Cars.

Two Mighty Important Factors

in the manufacture of Face Brick, Pavers and other clay products. They belong to the

American No. 291 Pug Mill.

American "Heavy Duty" Line

of clayworking machinery. These are not ordinary machines—not by any means—but they are built with the same great care that is given to the manufacture of Corliss Engines or similar high grade machinery. They are not heavy and cumbersome, but they get their great strength and endurance from the skill our engineers put into the designs and the high character of materials used in their construction.

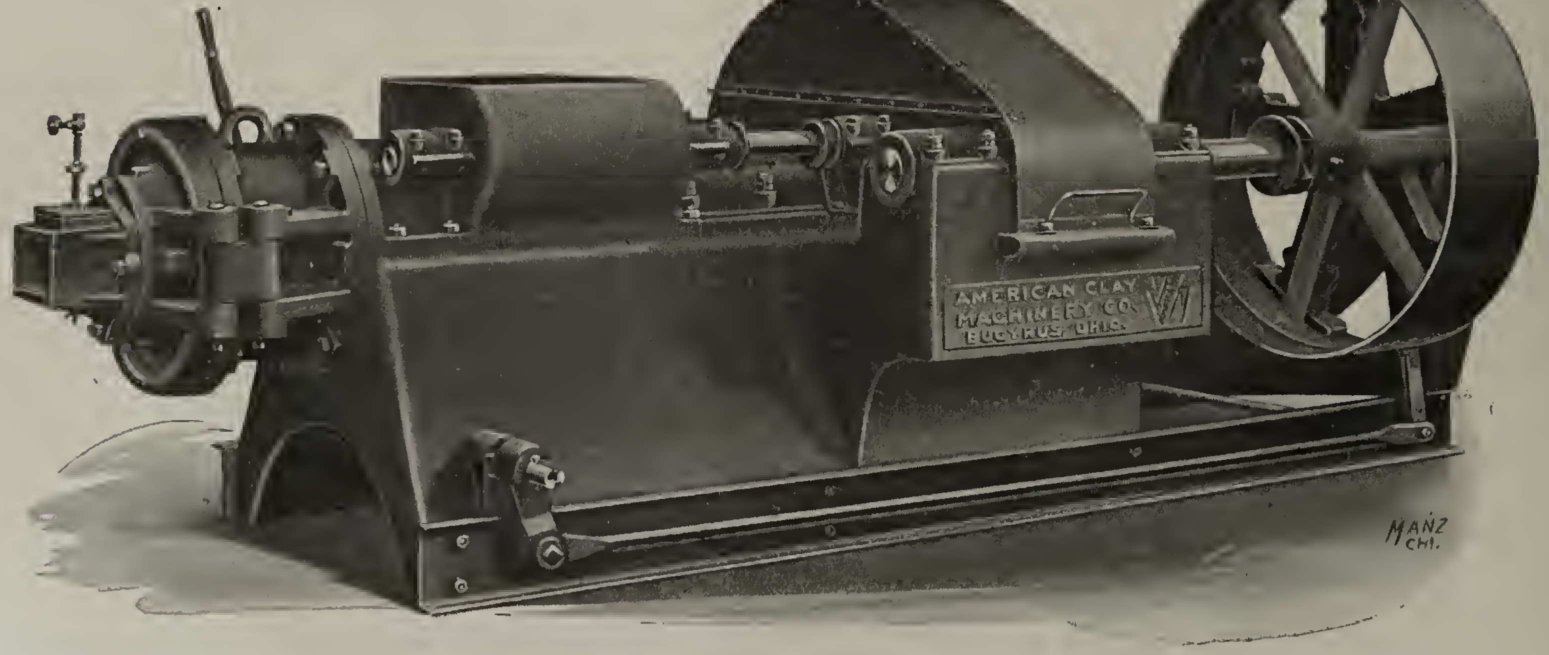
They are bound to give MAXIMUM CAPACITY, not only for one year, but for years. They are the kind of machines that bring satisfaction to the superintendent and gladness to the stockholders. They are "Built Right" — they "Run Right."

Don't neglect to find out more about our "Heavy Duty" lines

The American Clay Machinery Co.

BUCYRUS, OHIO

American No. 290 Brick Machine.



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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

In Next Issue—

will appear the first half of "Testing Clay Properties," by A. F. Greaves-Walker. To many, a discussion of this ages-old subject may seem entirely superfluous, but the very fact that it has been so lightly regarded has been the direct cause of more than one lost fortune and broken career in this industry.

¶ To be fore-warned is fore-armed. Read the opening part of this article in the DECEMBER 19th ISSUE and gain knowledge for your own protection, that has been made possible by the bitter experience of others.

¶ December is the first month of the busy winter convention season. The Institute of Paving Brick Manufacturers and the American Face Brick Association will meet in annual session between now and the NEXT ISSUE, and the new ceramic engineering building of the University of Illinois will be dedicated. Boiled-down and easy-to-read accounts of these happenings will appear in the DECEMBER 19th ISSUE, as well as the regular departments which are always filled with beneficial thoughts and ideas.

¶ And now for the Big New Year's Number which will be dated January 2nd. Nineteen-sixteen has turned the tide of steadily declining production in the clayworking industry, and has got the output figures going so fast in the other direction that no one knows to what heights the relative value and importance of burned clay products will reach in nineteen-seventeen. The New Year's Number will contain—but there will be more about this in NEXT ISSUE.

The EDITOR'S CORNER

Now the day is over,
Night is drawing nigh,
Shadows of the evening
Steal across the sky.

NINETEEN-SIXTEEN is fast drawing to a close and, as it shuffles "off its mortal coil," it leaves behind it memories of a most unusual twelvemonth. Not a few clay products manufacturers have traveled from the lowlands of despair to the heights of prosperity in this period of time, and now it seems as tho there is hardly a plant that is not sold up for several weeks and months to come. Truly, we have much to be thankful for as we look over the past year with its many temporal blessings.

However, now that the figures are steadily growing larger on the right side of the ledger, we wonder what most of us are doing about re-investing some of these profits with a view toward making our business more efficient, so that it will be able to produce a larger surplus in the years to come from the same amount of effort that is put into it.

How about standardizing some of the operations about the plant and eliminating some of the present waste? Why not do something about systematizing the burning so that there will be less guess-work about the results in this department, or why not invest a little money in a cost keeping system (you can have "Brick and Clay Record's" system for absolutely nothing, but it may cost you the wages of an extra clerk to get it working, if you do not now have any system whatever).

All of these improvements, and many others which we do not have space to mention, cost something to install, but they are worth it. It is unreasonable to expect that the present wave of prosperity is going to continue forever. We cannot travel on the heights all of the time. In the meantime, prepare today for the serious business of tomorrow.

* * *

Order Fire-brick Now

THE KILNS on your plant will probably need repairing pretty soon. Better order your fire-brick now than wait until early spring. You may as well make up your mind to pay the higher price for this commodity, as you will have to pay it no matter when you order the brick, and you will get better deliveries if you contract for your requirements now.

The fire-clay brick manufacturers already have their production sold from one to two months in advance, according to reports coming from all over the country, and just how far they will be oversold next spring, very few seem willing to predict.

* * *

A Costly Experience

THE DIFFERENCE between *knowing* that a piece of emergency equipment is all right and *presuming* that it is in good and usable condition meant just $7,000 to a large manufacturing concern in Pennsylvania recently.

The occasion was a fire which started in one department of the plant, presumably from a locomotive spark, and the equipment in question was a fire hose. The fire was quickly discovered and the mill fire squad responded promptly; there should have been little loss.

The fire squad attached a coupling of the plant's expensive new fire hose, ran it to the blaze and turned on the water. The hose burst in five or six places and the fire merely gained headway. The disgusted squad hurried to uncouple the hose and throw in another length, which immediately burst like its predecessor.

By the time a successful stream was finally secured the fire was burning fiercely. The loss amounted to $7,000 and was almost entirely due to the failure of the hose.

It was not a cheap hose that burst. On the other hand, the company had bought the most expensive hose it could find, but the salesman misrepresented his product and the company, taking his word that the hose was all right, stored it away in a closet until it was pressed into service to extinguish the fire above mentioned.

The lesson is obvious. All hose should be tested before being put on a reel or rack and thus made ready for emergency use. Take no man's word as to the pressure it will withstand. This is too important a point to leave to a stranger's veracity.

Getting Your Money's Worth?

WHEN YOU BUILT your home, office building, your plant or any other structure for which you may have had the pleasure (?) of footing the bill, you will probably remember that one of the most important parts of the job was the specifications. The architect or engineer drew these up for you after you told him what you wanted in the way of a building, so that you could have some basis upon which to ask for bids and to which you could hold the contractor in order that you might be sure and get just what you agreed to pay for.

You would no more think of letting a building contract without making the specifications a part of it than your wife would think of sending you to the store to match a piece of dress goods without giving you a sample.

But how about your coal which, in most plants, is one-third the cost of making the ware? Do you have any way of knowing that you are getting a dollar in value for every dollar you pay out for this commodity?

There is only one way to be sure that you are getting your money's worth when buying fuel, and that is to purchase it on specifications. An article on another page of this magazine will tell you all about it.

The leaders in every industry are adopting this method. Don't always try to be "The Man Behind," as an old song goes. Push into the front ranks. The men in front are "salting away" the hard, round ones.

* * *

Marketing the By-product

FINDING A MARKET for culls and off-shades, especially commons, is a subject in which it is hard to interest the average clay products manufacturer. In the majority of cases, he is satisfied that there is no outlet for these commodities—if they can be called such. But, remember, the Standard Oil Company is making not a small part of its profit from by-products. This subject is worth all of the thought that we can give it.

EARL E. LIBMAN,
From the University of Illinois

¶The two gentlemen, whose pictures are reproduced herewith, will be recognized as the winners in "Brick and Clay Record's" First Essay Contest.

¶Ceramic students! You can have your photograph in their stead, together with an honorable mention, by hustling for a place among the winners in the second contest.

A. C. S. TRANSACTIONS

Most Valuable Collection of Ceramic Literature in the
Dollars, Will be Awarded the Winner of "Brick and

IF THERE WAS ANY DOUBT about a ceramic students essay contest being of value, it has been dispelled by the quality of the papers which won the prizes for the two schools that entered the first contest and which papers have already been published, one in the November 7th issue and the other in the November 21st issue.

The first mentioned of these papers on "Kiln Arches," by Earl E. Libman, now a graduate student in ceramics from the University of Illinois, was a surprise to many veterans in the industry and a distinct addition to ceramic literature, inasmuch as it presented in a boiled-down and comparatively easy-to-read manner, a highly technical subject and one which is of considerable interest to every clay plant executive, manager or superintendent. The other winning paper—that on "Porous Brick by Use of Sawdust," by B. T. Sweely, Iowa State College—was labelled by Professor Orton as being "a timely topic and of distinct value to the industry." In addition to these two papers, a third, which lost out on the prizes by one point, entitled: "The Purchase of Coal on Specifications," by Frederick L. Steinhoff, is published in the current issue of "Brick and Clay Record" and reveals a wonderful knowledge of a subject, the following out of which would work decidedly to the advantage of every clay plant in the country.

SUCCESS OF FIRST CONTEST, REASON FOR SECOND

Encouraged by the results from the first contest, which it conducted early this year, "Brick and Clay Record" has decided to inaugurate a second competition to be conducted very much along the lines of the first; however, instead of offering a membership in the American Ceramic Society, a complete set of the transactions of that body, bound in cloth and including seventeen volumes, will be offered as first prize.

The membership prize was well received and a good attraction to the students, but it was found, after the contest had been well under way, that a good many students in the ceramic schools of the country were already members in the society and, since we had provided for no alternative, there was nothing to induce a student who was already a member of the A. C. S. to work very hard for the prize. Therefore, the decision as above stated.

SUCCESS OF FIRST CONTEST, REASON FOR SECOND

In addition to this first prize, there will be three honorable mentions, which means that the photograph and name of those who finish second, third and fourth in the contest will be published in the pages of "Brick and Clay Record," which reaches every worth-while clay plant in the industry and which cannot help but be of great value to the student who is given such prominence.

It is superfluous to say very much concerning the value of the first prize which is offered. It speaks for itself. Every ceramist knows that the transactions are positively the best collection of ceramic literature in the world and,

¶"Brick and Clay Record's" Second Ceramic Students Essay Contest will begin January 15th and close May 15th, 1917.

¶Registrations must be in by the first mentioned date. All students enrolled in a course of ceramic engineering at the various universities and colleges in the United States and Canada are eligible.

B. T. SWEELY,
From Iowa State College

to be OFFERED *as a* PRIZE

World, Bound in Cloth and Worth Nearly One Hundred Clay Record's" Second Ceramic Students Essay Contest

since very few have a complete set, especially bound in cloth, the prize is all the more valuable. Its monetary worth is placed at close to one hundred dollars.

FOUR MONTHS GIVEN TO PREPARE PAPER

Every student taking part in this contest must register with the Editor of "Brick and Clay Record" not later than January 15th, 1917. Four months will be given in which to prepare the paper to be submitted, which makes the closing date of the contest May 15th. A competent judge or committee of judges will be appointed to make the awards and these will probably be announced early in June.

Realizing that, in order to prepare a good paper, it is often necessary to make a research or special study of some subject, thus gathering the necessary data and information from actual work done, the four months' time has been given in which to do this work.

In this, the second ceramic students' essay contest, the foundation has been laid for one of the biggest and best feats ever pulled off in the industry. The prize is eminently worth while, the time given is sufficient to do good work and the results should be accordingly of high quality.

NECESSARY TO REGISTER BY JANUARY 15TH

Again we urge the immediate registration of every student who is eligible for this contest. Eligibility consists in partaking of a definitely described ceramics engineering course in any one of the following colleges: the University of Illinois, Ohio State University, Iowa State College, New York State School of Clayworking and Ceramics and Rutgers College. Students from other schools offering courses similar to those given in the preceding list are eligible for this contest.

After the paper is prepared it can be submitted thru the director of the ceramics course of the school in which the student is enrolled, or it can be sent direct to the Editor of "Brick and Clay Record." The former course is preferable and, unless there is some special reason for doing otherwise, it should be followed.

* * *

Iowa Clayworkers Plan Big Time

The ceramic engineering department of the Iowa State College at Ames, Iowa, has plans well under way for an elaborate clayworkers' institute, to be held during the week beginning Monday, January 15th, 1917. The institute will comprise both laboratory work and lectures given by speakers of national reputation, who will deal with the various phases of clay products manufacture, efficiency methods, freight rates and regulations, marketing and advertising.

A number of men recognized as experts in their particular lines have already been secured as speakers.

Among these may be mentioned Lawrence E. Barringer of Schenectady, N. Y., president of the American Ceramic Society; A. V. Bleininger, ceramic chemist, United States Bureau of Standards, Pittsburgh, Pa., and A. E. Williams, also of the Bureau of Standards, Pittsburgh. Other speakers will be announced in the near future.

Additional equipment is now being installed in the ceramic laboratories at the college in order that large groups of men may be handled to the best advantage in the laboratory work to be done during the institute week.

Of course, the Iowa Clay Products Manufacturers' Association will meet at the same time that this institute is conducted, holding its annual convention in connection therewith. Among their special attractions will be a six reel motion picture illustrating the manufacture of clay products in various parts of the world. A special meeting of the Permanent Buildings Society will also be called to meet at the same time and place as the institute and the Iowa association.

Jersey Clayworkers to Hold Winter Meeting

The winter meeting of the New Jersey Clay Workers Association will be held on December 27th and 28th at Rutgers College, New Brunswick, N. J., and an interesting and instructive program, including papers treating of the practical as well as of the technical problems of the ceramic industries has been prepared. The members of the association are urged to attend, and all others interested in the furtherance of the welfare of the ceramic industry in this country will be cordially welcomed at the meetings of the association.

The investigation work on the clays of New Jersey, at present conducted by the department of ceramic engineering at Rutgers College, is being continued thru the present school year, according to George H. Brown, director of the department of ceramics and, to date, complete tests have been made on about two hundred representative clay samples.

PROMINENT MEN GRACE U. *of* I. PROGRAM

FORMAL DEDICATION of the new quarter-million-dollar ceramic engineering building of the University of Illinois will take place at Urbana on December 6th and 7th. Many prominent speakers, including Governor Edward F. Dunne; W. L. Abbott, president of the board of trustees of the university; Dr. S. W. Stratton, director of the U. S. Bureau of Standards, and Claude Bragdon, author and architect, will address the several meetings which are to be held.

The ceramic engineering building is a three-story structure covering a ground area of 67 by 189 feet. It is constructed of materials which are representative of the ceramic arts, such as high-grade brick, tile and terra cotta. Its laboratories are equipped with the latest types of apparatus needed for instruction and research in the manufacture of stoneware, china, brick, tile, sewer-pipe, terra cotta, glassware, sanitary ware, electrical and thermal insulating materials and other ceramic products.

The program, in full, for the dedication exercises, follows:

WEDNESDAY, DECEMBER 6TH

1:30 P. M.—Meeting of the Advisory Board of the Department of Ceramic Engineering. F. W. Butterworth, chairman, Danville; A. W. Gates, Monmouth; W. D. Gates, Chicago; J. W. Stipes, Champaign; Eben Rodgers, Alton.

2:30-4:30 P. M.—Opportunity will be given to all friends of the University to inspect the new building and its laboratories.

Introductory Session

8:00 P. M.—At the University auditorium, Dr. Edmund J. James, president of the University, presiding.

Organ recital.

Address: "The Ceramic Resources of America," Dr. S. W. Stratton, director of the U. S. Bureau of Standards, Washington, D. C.

Address: "Science as an Agency in the Development of the Portland Cement Industries," J. P. Beck, general manager of the Portland Cement Association, Chicago, Ill.

THURSDAY, DECEMBER 7TH

Technical Session

8:30 A. M.—At the University auditorium, Dr. E. W. Washburn, head of the Department of Ceramic Engineering, presiding.

Address: "The Manufacturer's Dependence upon Ceamic Research," W. D. Gates, president of the American Terra Cotta and Ceramic Company, and past president of the American Ceramic Society, Chicago, Ill.

Address: "The Use of Ceramic Materials in Highway Construction," W. W. Marr, chief state highway engineer, Springfield, Ill.

Address: "Ceramic Products as Structural Materials," H. J. Burt, Structural Engineering, Chicago, Ill.

Address: "The Use of Ceramic Products in the Artistic Embellishment of Buildings," Claude Bragdon, author and architect, Rochester, N. Y.

Session of Dedication

2:30 P. M.—At the University auditorium, Dr. W. F. M. Goss, dean of the College of Engineering, presiding.

Invocation: Rev. C. R. Adams.

Address on Behalf of the State, Hon. Edward F. Dunne, governor of Illinois.

Address on Behalf of the University, Hon. W. L. Abbott, president of the board of trustees.

Address: "The History of the Ceramic Arts," Professor Charles F. Binns, director of the New York State School of Clayworking and Ceramics, and past president of the American Ceramic Society.

Address: President Edmund J. James, University of Illinois.

Song: "America," audience.

4:00 P. M.—At the Ceramic Engineering Building.

Prayer of Dedication: Rev. J. M. Page.

8:00 P. M.—In Room 218, Ceramic Engineering Building.

Installation of the Illinois Student Branch of the American Ceramic Society. Installation exercises in charge of L. E. Barringer, president of the American Ceramic Society.

* * *

After meeting to consider the ten per cent. wage increase offered them, with certain provisions, by the manufacturers, the kilnmen employed on thirty-six potteries in East Liverpool, Ohio, voted 239 to 143 to accept the increase and avoid a strike. Agitation was said to be afoot to refuse the increase unless the provisions were withdrawn, but the men appreciated the firm position taken by the manufacturers and decided to accept the offer.

PRINCIPLES *and* RESULTS

Waste Elimination; a Summing Up of Points Previously Made, and a Few Examples of What Has Been Accomplished Thru Scientific Management

By Dwight T. Farnham

A NUMBER OF YEARS AGO, the writer spent an evening with a millionaire whose fortune had been made by extracting the valuable metals from the smoke of smelters which had previously been spread over the landscape to the detriment of crops and the disgust of the population. Tin cans, which once littered the copper country, have now become valuable to reclaim the copper from the impregnated streams which flow from the mines. Cedar stumps, which were left as useless when the Northwest was logged, are now being made into shingles. Parts of slaughtered animals, with which the American farmer formerly rendered the countryside an offense to decent nostrils, have assisted in piling up the $100,000,000 surplus which Armour and Company have accumulated since 1900, as everyone who has visited the stock yards knows.

There is money in the elimination of waste, but most manufacturers are too busy turning out their product to study the matter as it should be studied. The production is the big thing; the driblets which seep away thru innumerable channels seem relatively unimportant. The amount and quality of the output makes a big noise. The eternal drip, drip, drip of the waste is lost in the roar of the machinery. And therein lies its very danger. Quietly, subtly and continuously the "rats" of waste steal away to their holes with the profits of the business. No one notices them and, at the annual meeting, the stockholders are told that *it has been a "bad business year."*

WASTE ELIMINATION IS AN ATTITUDE OF MIND

It does not mean that the president of the company should spend his time picking up and straightening rusty nails about the plant, that the treasurer should spend a half hour every day slitting envelopes with a paper-knife to save spending a cent for a scratch pad or that the superintendent should follow his men around turning off electric lights. Such matters may be worth the attention of the office boy but the officers of the company are paid to perform more important duties.

Photo No. 1. A Waste of Material in the Metal Scrap Heap Which Was Swept from the Machine Shop with Dirt, Shavings and Refuse of all Sorts

It does mean, however, that a careful and painstaking study should be made of all wastes about a plant, in the order of their importance, by someone fitted by training and ability for the work. A. V. Bleininger, in running heat balances on a number of kilns, found that the coal which was lost by being carried out to the dump with the ashes amounted to *eighteen per cent.,* of the theoretical coal required to burn the ware in a building brick kiln, to *thirty-four per cent.* for a paving-brick kiln, and to *eighty per cent.* on a sewer-pipe kiln at three different factories. How much of this could have been saved is, of course, problematical, but *how many clay workers know what proportion of their coal is reaching the dump partially or wholly unconsumed?*

Photo No. 2. Labor and Material Waste Is Shown Here in Dumping Overburden Too Near the Face of Shale Bank, and in Not Using it Up Gradually in the Manufacture of Ware

VARIOUS KINDS OF WASTE ILLUSTRATED

Wastes may be of several sorts, but of whatever sort competent staff investigation will bring them to light—and like rats they won't stand publicity. The first photograph among the accompanying illustrations shows a waste of material in the metal scrap which was swept from a machine shop with dirt, shavings and refuse of all sorts. It will be noted that the pile contains castings, turnings and wrought iron. Every one of these commodities brings a different price from the dealer in old metals and three separate bins, one for each sort, would not only have improved the appearance of the factory but would have increased the return from this by-product.

The second photograph shows a waste of material and of labor. The pile of shale and sand rock is part of a mass of approximately three thousand cubic yards which originally occurred as overburden but which was thrown back to clear the shale at a cost of about $1,200. It will be noted that the shale face, at the left, has nearly reached this pile which will have to be moved back again. Just how long this concern will keep up this rehandling instead of figuring out a permanent method of disposal, or using up the material gradually for the manufacture of low-grade wares, *is in doubt.*

The third picture represents the correction of a former method of mold handling, which wasted labor in searching for a mold lost among five thousand others and material in making up new molds when the one lost could not be found. It will be noted that each bin and each mold has been numbered.

The fourth picture tells its own story. It is a three-man dump car, to say nothing of the mule. Two men tip up the car while the third shovels out the material. The mule holds himself up. The only *material* wasted is the mule-feed.

Photo No. 3. The Correction of a Former Method of Mold Handling in a Fire-brick Plant, Which Wasted Labor in Searching for a Mold Lost Among Five Thousand Others and in Material Making Up New Molds When the One Lost Could Not Be Found

The remedy, as has been stated, is staff investigation. You may catch a glimpse of how much you are wasting and how much you can save if you will forget the factory and what it is making and wander thru looking only for rat holes. *Try it some day.*

THE UNDERLYING PRINCIPLES

One evening when the writer was discussing the principles of scientific management with an engineer who is perhaps as thoroly grounded as any man in the country, he endeavored to tabulate these principles. My friend watched me for a few minutes and then with that dryness of humor which is the delight of all who are privileged to know him, remarked: "Don't become a Methodist." "They are all right in religion, but when an engineer tries to reduce what he knows to mottoes to hang on the wall of his office, he'd better drop engineering and take up preaching."

There is great danger in reducing knowledge to "rules of thumb," because once this is done the author of the rules —having once committed his belief to writing—feels that he must forever defend those beliefs, even as our political parties defend their platforms. As a result, the engineer who has once enunciated his beliefs is induced to seek always the facts which prove his contentions and to ignore all other facts. This leads to *biased judgment* and often to *disaster.*

The writer realizes this danger, but nevertheless feels that a review at this time of the points which he has endeavored to make in the preceding pages will perhaps accentuate those which are important and will add to the clarity of the whole exposition. Before so doing, however, he feels that it would be well to quote a statement made by Edward D. Jones, Professor of Commerce and Industry of the University of Michigan, concerning the source of the term "Scientific Management."

"The pure method of science is the original source of inspiration of Scientific Management. Very briefly and inadequately expressed, it is somewhat as follows:

"1. The first step is to analyze a subject into parts; and to deal with the subject a part at a time.

"2. The second step is to proceed with the collection of data, in this analytical form, until it is certain that the record fully records the law of the subject, whatever that law may be; and further, until accidental errors and other variations due to chance are reduced to negligible or definitely calculable proportions.

"3. Third, the data is to be so arranged that it will be brought to bear as fully and clearly as possible upon the object of the study.

"4. An inference is made, or a new relationship discovered.

"5. The fifth and last step is to give to the new inference a thoro testing, by comparing it with known facts, to ascertain whether it is truth or error. If the new inference stands the tests, it is no longer considered an hypothesis, but a truth."

As one man—born East of the Rhine—expressed it: "Ven you see somding you don'd understand, you bicks it all apardt into a lot of liddle bieces. Den you look at der liddle bieces vun by vun, and glassify dem in heaps. Und der biggest heap—dot is it!" The scientist may be ridiculed by the self-styled practical man but the successful man, consciously or unconsciously makes use of the scientific method and, no matter how much we may laugh at the bespectacled professor, we all respect our Edisons, our Hammonds and our Henry Fords—the *scientists* who have *made good.*

THE PRINCIPLE UNDERLYING SCIENTIFIC MANAGEMENT.

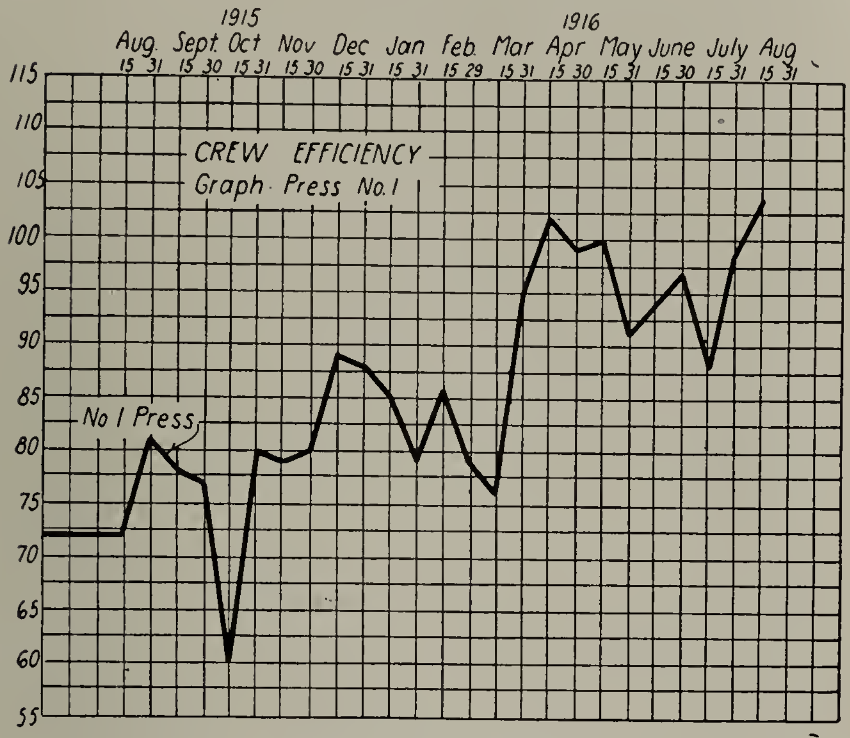
The scientific method then, is *the* principle underlying Scientific Management. Various engineers have different methods of applying the principle and have enunciated their methods, each in the form which he believes is best calculated to explain his own application of the principle. These codes are necessarily somewhat vague because each particular business, nay, each particular department and operation must be studied separately and the remedy applied which will insure the maximum operating efficiency of that operation, department and business, at all times. In doing this, there is brought to bear on the problem all the knowledge of the workman, the foreman, the superintendent, the manager and of the engineer. The greater the knowledge of each, the more perfect the final result. The engineer is not a critic but an expert in the art of organizing your forces for victory by the application of *the* principle and its elaborations.

Photo No. 4. A Three-man Dump Car, to Say Nothing of the Mule. The Only Material Wasted in This Case Is the Mule's Feed

MODERN INDUSTRIAL ENGINEERING TABULATED

For the purpose, then, of reviewing the application of the principle as set forth in the preceding pages and, in order to bring out more clearly and directly the application of the scientific method to business, the following tabulation has been prepared:

1. STANDARDIZATION of Machinery, equipment and conditions, as described in detail in the preceding pages.
2. ROUTING, insuring that the product is moving in the most economical manner with the fewest, shortest and least damaging moves possible.



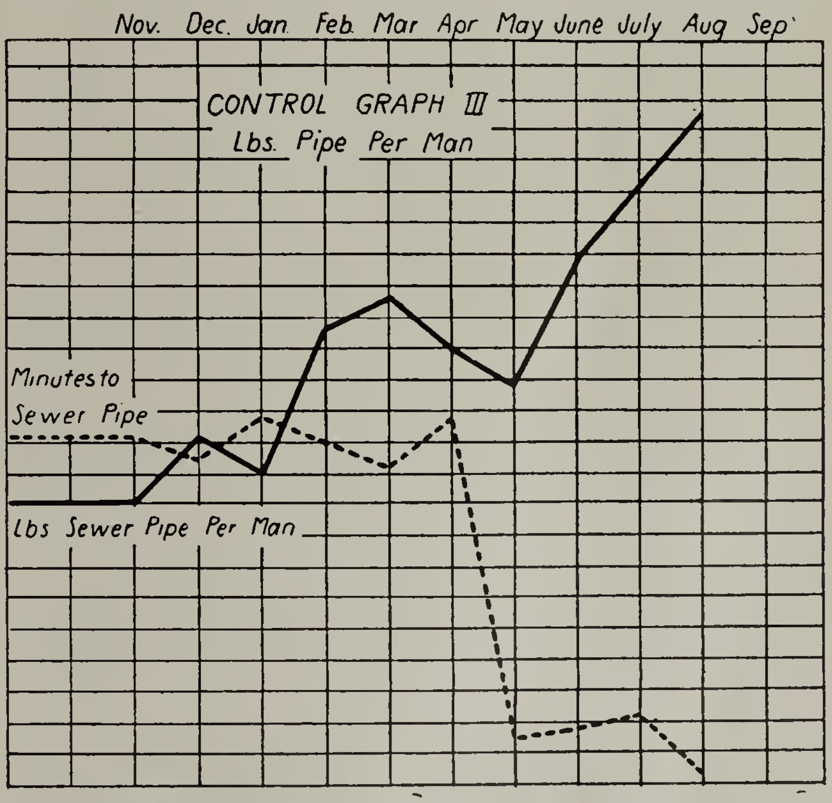
An Actual Example of What Scientific Management Accomplished in Nine Months

3. CENTRALIZED CONTROL, including:
    1. Setting Standards of Accomplishment.
    2. Scheduling—planning to attain these standards.
    3. Despatching—making sure, step by step, that the standards are attained.
    4. Stores and Material Control—to integrate with the above and so insure the presence of the right thing at the right time.
    5. Release of executives from details of operation by means of the Exception Principle.
4. ANALYTICAL COST SYSTEM.
    1. Graphic comparison of all important operations.
    2. The Ratchet Principle—preventing the loss of an advantage once it is gained.
    3. Immediate Returns—on all important operations, allowing the application of correctives in time to save the maximum amount of loss.
5. WASTE ELIMINATION. Application of the scientific method to losses of every sort, insuring their sure reduction to the minimum.
6. STAFF INVESTIGATION OF ALL PROBLEMS OF ADMINISTRATION, SALES AND MANUFACTURE.
    1. The Committee System.
    2. Harmony Meetings.
    3. Development of Specialists.
    4. Expert Counsel.
7. DEFINITE MANAGEMENT—as contrasted with casual methods of control and organization:
    1. Exact and clearly stated limitations of Line Authority—preventing the conflict of orders, loss of energy wasted in the efforts of one executive to encroach upon the preserves of another executive, and the various other inefficiencies of the Feudal type of organization.
    2. Functional Foremanship—which combines Staff specialization with Line executive powers in the same individual or in different individuals with such concert of action that the effect is equally effective.
8. INTENSIVE LABOR DEVELOPMENT.
    1. Labor Turnover Reduction.
    2. Organized Employment.
    3. Safety First.
    4. Health Insurance, Hospitals, etc.
    5. Welfare Work.
    6. Profit Sharing.
9. ANALYTICAL TIME STUDY. The scientific determinations of exactly how much work should be turned out by each employe.
10. THE BONUS REWARD, involving the payment of each worker—laborer, foreman, superintendent, salesman or manager—in exact proportions to what he accomplishes for the company.
11. WRITTEN INSTRUCTIONS AND STANDARDS. The preservation in permanent form of all facts leading up to decisions and of all decisions, either Staff or Line reached by the executives and the experts of the company.
12. MODERN BUSINESS IDEALS, implying that supreme common sense, which has a regard for the highest business ethics, believes in the fair deal toward labor, competitors and customers, possesses a willingness to exchange ideas with others and an open mind toward new ideas and toward technical and expert counsel, and is willing to participate in personally, and to support progressive movements of real merit and which practices to the best of its ability what has been characterized as the "golden rule in business."

WHAT HAS BEEN ACCOMPLISHED

The principles of Scientific Management have been applied as a whole or in part, by the writer and by his friends—whose work he has had an opportunity to investigate thoroly—to at least ten different clay plants. He has furthermore taken an active part as engineer and as supervising engineer in the installation of efficiency methods in industries whose nature differed widely, and has had access to the records and has studied the results of the application of the principles to mines, railroads, department stores and to manufacturing establishments of all sorts. As a result, he is convinced that there is no doubt as to the efficacy of the principles.

There have been failures in the application, of course, but in this he feels that C. Bertrand Thompson's analysis is substantially correct. The faults have been those of the management and of the consulting engineer. There would have been fewer failures under the first head if engineers would



What Scientific Management Did for One Factory in Nine Months

follow more closely Frederick W. Taylor's dictum and refuse to do work for those who were constitutionally unfitted for it. Aside from such errors of judgment, failures on the part of the engineer have been due principally to lack of personality and to inexperience—the inability, as Mr. Taylor phrased it, "to recognize the diseases of the men, of the foreman, of the superintendents, of the management, of the directors and of the stockholders *before* they occurred and to cure them before they developed."

The time to cure labor troubles is when a little group of men are consulting furtively together in the shadow of a wall, or when a workman of an ordinarily sunny disposition greets you with the face of a wooden doll—not when trouble is organized and the strikers' committee waits upon the manager. The time to labor with a foreman is when he eyes you askance—not when he throws up his job after making arrangements with a rival concern. And the directoral mind, whose optimism or despair is traceable on occasion even to the rate of exchange in Argentine or to the fluctuations of the London stock market, can be interpreted only after years of association and careful study.

Successful results are secured not by youngsters fresh from college, or by hide-bound and prejudiced superintendents trying to apply half understood principles read in some book. *The work must be done slowly, carefully and understandingly by trained men.* Scientific Management involves the education of all concerned. No man living can assimilate a language or comprehend a race in an instant by buying a dictionary or by stealing an historical treatise. Each step must be thoroly understood before the next step is taken. Cause must be linked to effect. *Time is an essential.*

Neither is it a thing to be entered into lightly. Exactly what is contemplated must be understood thoroly by the owners and by the executives. The results obtainable, however, are infinitely desirable—to the workman, to the executive and to the stockholders. The principles are incontrovertible. Their proper application requires time, patience and skill. The concern which would enjoy their benefit must be prepared to sacrifice the immediate to the ultimate, to share its gains with its workmen and to play the game straight—for the good of its stockholders. *Under such circumstances there can be no failure.*

EXAMPLES OF RESULTS OBTAINED

A few typical examples of the economies effected by the scientific application of the principles of industrial efficiency, for whose correctness the writer is able to vouch, are given below:

Sewer-pipe Factory—eighteen months work. Labor cost cut twenty to thirty per cent. Output increased fifty per cent. Quality of product increased twenty per cent.

Combination Plant—six months work. Cost of paving-brick production cut. Output increased thirty per cent. Burning time cut over forty per cent. Quality increased thirteen per cent. Sewer-pipe labor cost cut nine per cent, output increased sixteen per cent, quality improved eleven per cent.

Paving-brick Factory—labor cost cut fifteen per cent. Output doubled. Percentages increased thirty-eight per cent. and rattler loss lowered from nineteen to sixteen per cent.

Fire-brick Factory—cost of production reduced thirty per cent. Output increased thirty-three per cent. without increasing the equipment. Percentage increased seven per cent.

Hollow-ware Plant—cost of production cut seventeen per cent. Percentage of first-class ware increased twenty-five per cent.

Automobile Accessory Plant—economies affected amounting to over $200,000 per year.

Steel Mill—cost of grinding switches reduced from $0.21 to $.037. Cost of forging braces from $0.612 to $0.258 per one hundred pieces. Cost of bending plates, from $3.18 to $1.34 per one hundred pieces. Cost of counter-sinking holes cut from $0.031 to $0.012 per one hundred pieces. Cost of drilling eighteen holes cut from $0.17 to $0.10 per one hundred pieces. Cost of threading bolts cut from $0.21 to $0.046 per one hundred pieces. Cost of welding and bending bars, cut from $0.74 to $0.33 per set. Cost of planing plates cut from $0.336 to $0.148 per one hundred pieces, and so forth.

Miscellaneous Steel Work, Steel Castings—cost of labor per good ton cut from $7.50 to $4.80 in seven months. Defectives reduced twenty per cent. Number of pounds of good castings per molder increased from 1,050 to 1,700. At another plant the output was increased 190 per cent., the good castings per molder were increased sixty per cent. and the cost per ton was decreased thirty-four per cent.

Riveting—cost per hundred rivets reduced from $1.60 to $0.75. Rivets per gang per day increased from 400 to 1,050.

Structural Work—cost per ton cut from $14.00 to $4.50 in seven months. Average number of tons per man increased from 4.90 to 12 for the month.

Yard Work—force reduced, each man handled 3,600 tons instead of 1,800 tons and wages were increased from $1.75 to $2.00 per day.

Saw Mill—labor cost reduced thirty per cent. Power cost reduced forty per cent. Supply cost cut twenty-five per cent. and light cost reduced fifty-six per cent., bringing the total cost of sawing down thirty per cent.

Planing Mill—cost of hauling to planer reduced twenty-six per cent., light and power cut forty-four per cent., labor cost twenty-two per cent., reducing the total planing cost twenty-two per cent.

Logging—bucking and falling cost reduced thirty-eight per cent. Loading cost thirty per cent., yard and hauling forty per cent. Supply expense cut thirty-seven per cent.

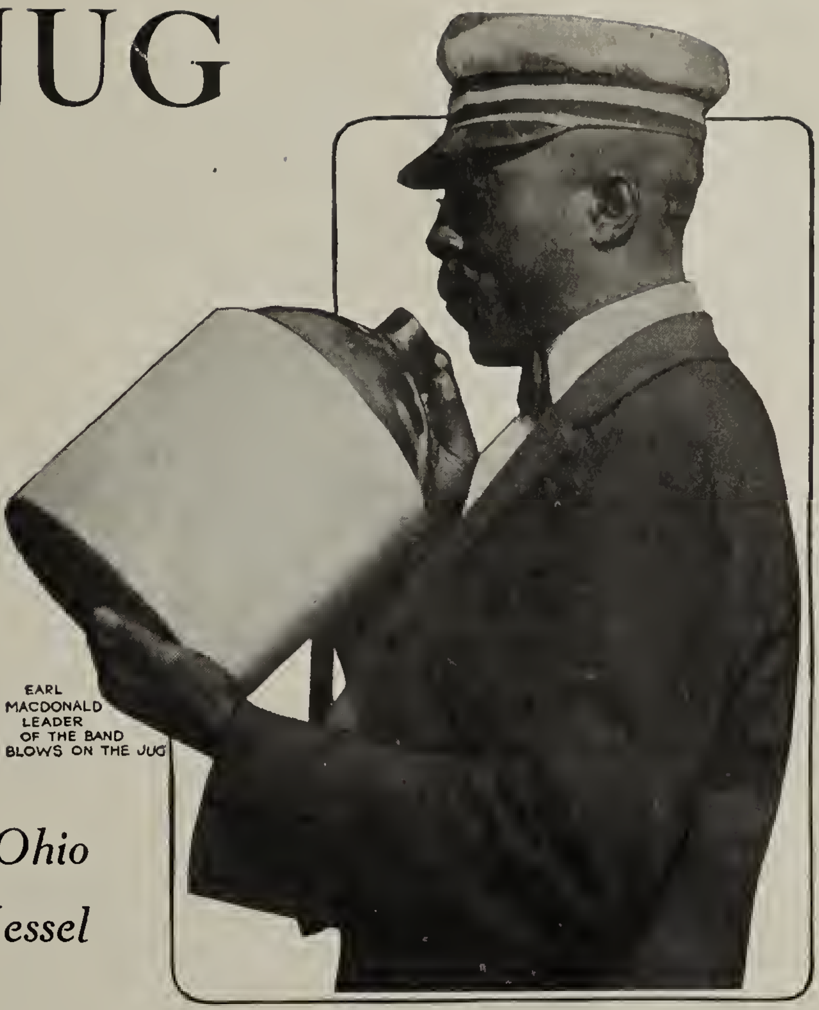
Clothing Manufactory—output increased sixty per cent., working force reduced twenty-five per cent., wages increased twenty-five per cent.—$2.00 per week over and above those paid by the thirty-five other concerns in the district. Quality of work increased. Profits were more than double those of the best previous year and the usual loss on spring business was turned into a profit of over $50,000.

Miscellaneous—a printing house doubled its business and saved $10,000 on paper stock in one year alone. A ship yard discovered that it was carrying 350 men on the payroll who did not exist. Draying costs were cut twenty-five per cent. in a jobbing concern. In a machine shop it was discovered that some men could have made $18 per day on existing piece rates. In an axle factory men were discovered selling surplus work to their fellow workers at reduced rates, because they did not dare turn them in as their own work for fear the piece rate would be cut. A glass factory in one department replaced six boys by two men and cut the breakage from forty to ten per cent. An output of seventy-nine kegs of railroad spikes per machine was increased to one hundred and twenty-four kegs in sixty days. Scientific Management saved a pipe foundry $120,000 in two years.

The principles have been successfully applied to automobile factories, to motor engine plants, axle, fender, body and accessory plants, to railroads, foundries, steel mills, department stores, packing houses, paper box factories, textile mills, paper mills, agricultural machinery plants, to jobbing concerns, furniture factories, publishing houses, mines, hotels, clubs, city government, public service corporations and even to farms. Every phase of industrial activity is to some extent amenable to the system. The results obtained depend only upon the efficiency of application.

(*Editor's Note: This concludes the articles which have been contributed by Mr. Farnham on Scientific Management as applied to clayworking.*)

The LOWLY JUG *as a* MUSICAL INSTRUMENT



EARL MACDONALD LEADER OF THE BAND BLOWS ON THE JUG

Close Imitation of Bass Viol Produced by Ohio Valley Performers from Earthenware Vessel

IF YOU WERE TO TELL the average manufacturer of stoneware that, to a considerable element of the population, especially south of the Ohio river, he is regarded as a maker of musical instruments, he would think you were trying to have some fun with him. But, whether he knows it or not, the chances are that a large number of the jugs he ships from his plant will become the instruments of musical noises before somebody drops them and destroys their usefulness for any further purpose.

Some of those jugs will, in all probability, give forth incidental and convivial music when, for instance, fermenting cider inside them pops and corncob stoppers come out with a musical "bing." There are other ways in which the bell-like qualities of the vessels will make sounds with the vibratory character of music, but these sounds are all incidental. Barrels make them; so do bottles. The jug, however, is the only vessel of its species that is deliberately chosen as an instrument with which to produce rhythmic and orderly music.

LOUISVILLE HAS A DOZEN "JUG BANDS"

In all parts of the Ohio and Mississippi valleys the jug has long been recognized as something on which music could be made. It has not always been much used for the purpose, but the colored brotherhood is well aware of its capabilities along that line. During the last several years, however, especially in and around Louisville, jug music has come in for a good deal of popularity. At this time Louisville boasts probably at least a dozen more or less well organized "jug bands," while there are any number of occasional players, who, in company with fiddlers or other music makers, patrol the streets in summer evenings and pick up odd quarters for their serenades.

One band, which claims to be the original, includes Earl Macdonald, a colored man who has acquired astonishing proficiency as a maker of jug music. The jug is merely the "piece de resistance" of the band, if the term may be used, one of the several instruments, but gives its name to the band. It is principally an instrument for accompaniment, and is not a great success as a solo instrument. In the make-up of the "jug band" or orchestra, the jug takes the place of the bass viol and, when "blown" by a skilled jugger, faithfully reproduces the booming chords of that big fiddle.

NO DIRECTIONS FOR PLAYING THE "INSTRUMENT"

As indicated in the picture, the music is made by blowing into the mouth of the jug, at an angle, as a rule. There are no directions and the most expert juggers seem unable to give the least assistance to beginners.

"Yo' jes' tak' de jug up and blow in it untwell it hollers," is the way one artist explained the process.

The size jug to use depends upon the "lung power" of the player. The two-gallon jug is the most favored, the one with the gray barrel being preferred, principally for looks. All sizes are used, however, from one gallon to five. As may be expected, the size of the jug determines the pitch of the notes produced by it, the larger the jug the lower the register. No human being can keep blowing a five-gallon jug full, however, or even a four-gallon jug, so the capacity of the jug and the lungs of the player are sometimes equalized by pouring water into the large jug. In theory any size jug could be played, but in practice the three-gallon jug is about the largest practicable to use.

SOUND PRODUCED ON WHISTLE PRINCIPLE

The sound is produced on the same principle that a whistle blows. Everybody has whistled over the mouth of a bottle, or by blowing over the open end of a brass cartridge. The same principles operate in jug playing. The tone is varied by variation of the amount of air directed into the mouth of the jug, by the angle at which it is blown, distance from the mouth of the blower, and so forth. A booming note is produced, rising or falling in pitch according to speed of the vibrations, and blending according to the lung capacity and skill of the operator. Around the corner, out of sight, with a guitar or mandolin, a piccolo or cornet, going at the same time, one would be sure that a big bass viol was being played, instead of a jug.

JUG MUSIC A FAVORITE WITH COLORED MUSICIANS

The jug as a musical instrument is monopolized, practically, by the colored musicians, of whom Earl Macdonald, Louisville, is perhaps the best known. He has frequently gone from Louisville with members of his aggregation, or alone, to northern and eastern cities, where he has greatly interested people in his playing. The novelty wears off after a time, of course, but the jug, when skillfully played, makes real music. With the smaller sizes, which call for control of the breath instead of mere volume, Macdonald can carry many melodies, and he and other experts perform all manner of evolutions with the jug while they are playing it. The Scotch drummer is not more free with his sticks than the expert jug player with his jug.

HOW A "SINGER" IS UNCOVERED

One jug, except for the limitations of size, appears to be about as desirable as another for a musical instrument. There will occasionally be found to be a jug which happens to have burned better than the average in the kiln. It booms more easily and louder than the soft jug that may be defective under the glaze. One "blow" or two will tell the story. When he does find a "singer," however, the jug player guards it the rest of his days and, when he goes forth to play, the jug hangs by a strap from his shoulder.

* * *

Nebraskans Announce Convention Plans

Plans for the coming convention of the Nebraska Brick and Tile Association were discussed at a dinner given by the members of the association in honor of those members of the faculty of the University of Nebraska who had assisted in working out the program for the convention held by the association last January. It was decided at this dinner that Professor Leon W. Chase, head of the engineering department of the Agricultural College, should again have charge of the meeting, since his efforts last year resulted in what was generally termed by far the most successful meeting ever held by the Nebraska organization.

"It is the expectation of the association to bring the men together for a three days' school session, knowing that they will return to their homes with a fund of information that will result in the improvement of their business," writes Frank R. Ringer, secretary of the organization. And if the coming convention turns out as successful as that held last year satisfaction will reign, for at this gathering there was an attendance of forty-two members. Starting off the first session with an attendance of sixteen, the attendance gradually increased until, at the adjourning meeting, a total of forty-two members was present.

Equally as good a showing is confidently looked forward to at the coming convention by the officers of the association who, together with Professor Chase, are planning the program. As yet, the date of the gathering has not been decided upon, but it is known that it will take place some time in January.

* * *

Badgers Will Meet Early in February

According to an initial announcement from Secretary Samuel Weidman of the Wisconsin Clay Manufacturers' Association, the seventeenth annual gathering of that body will be held in Milwaukee on February 1st and 2nd.

Headquarters will be maintained at the Republican House, and a program of unusual interest will be presented. Those who have the arrangements for the program in hand are looking forward to a large attendance on the part of the clayworkers in the state, as well as visitors from the adjoining territory.

* * *

Terra Cotta Society to Go to New Orleans

The annual meeting of the National Terra Cotta Society will be held at New Orleans, La., on January 29th and 30th, 1917, headquarters being maintained at the Grunewald Hotel.

* * *

Road Builders at Meeting Plan Convention

The annual meeting of the American Road Builders Association was held on Friday, November 3rd, at the Automobile Club of America, New York, N. Y., and after a report was read by the secretary showing the association to be in a healthy condition, the executive committee outlined plans for the annual convention of the association to be held in Boston, Mass., during the week beginning February 5th, 1917. The Eighth National Good Roads Show will be held in conjunction with the convention, and the most successful affair of its kind ever undertaken is promised.

The meeting was followed by the annual "get-together" dinner at which the results of the ballot for officers, which had been conducted by mail, were announced. Arthur W. Dean, chief engineer of the Massachusetts State Highway Commission, was elected president of the organization, to succeed Col. E. A. Stephens, state commissioner of public roads of New Jersey.

Many interesting subjects were discussed and orated upon at this dinner, all of which, of course, dealt with the solution of the highway problems as existing today, and means and methods for "lifting the nation out of the mud."

* * *

New Addition to "Sixth City" Clay Family

A new brick company in Cleveland, Ohio, has started operations under the name of the Samson Brick and Clay Company, which has been incorporated for $50,000. The company has acquired the plant of the Ohio Face Brick Company at Fredericksburg, near Wooster, Ohio, which was erected at a cost of $72,000. This property includes ninety-seven acres of ground and mineral rights on two hundred and fifty acres adjoining.

A special feature of the enterprise, according to Frank Nutting, chairman of the board of directors of the new concern, is that there is a three and one-half foot vein of coal in a mine on the property. This vein, experts say, extends three or four miles. Already this mine is being operated by the new firm, and the fuel that is not needed in operating the plant will be shipped to market.

The company will manufacture fire and face-brick of different varieties. For the present the capacity will be kept at about 20,000 brick daily, but with the addition of new kilns and other buildings, the output is expected to be increased to 80,000 a day in about six months. The material from which the brick will be made is claimed to be the best No. 2 fire-clay in Ohio. At present the plant has four kilns, but this battery will be increased to ten in a few months, Mr. Nutting says.

Officers of the new company are: President, P. F. Pontius; vice-president, Alexander Pako; secretary-treasurer, Frank C. Smith. Incorporators include the officers, the chairman of the board, William H. Balhorn and D. H. Adolph Pritschau. Headquarters of the company will be maintained at 9638 Lorain avenue, Cleveland, Ohio.

The PURCHASE *of* COAL *on* SPECIFICATIONS

How to "Play Safe" on the Fuel Question, in Which is Described the Only Sound and Economical Method for Buying Coal Requirements

By Frederick L. Steinhoff
Student in Ceramics, University of Illinois

¶ *The following paper was among those submitted in the recent ceramic students essay contest, conducted by "Brick and Clay Record," but which lost out on the prizes by only one point.*

¶ *While the paper is not original in thought or matter, it presents a theme which clayworkers ought to know about and which they very seldom use. The case presented by the author is a simple adoption of what is in daily use in other industries, to use in an industry not now employing it.*

¶ *While written by a youngster, comparatively speaking, the following article merits a careful reading by all who are anxious to learn of a method for correcting a weak spot and, incidently, cutting costs.*

WITHIN THE PAST DECADE or two, rapid strides have been made in the manufacture of burned clay products, so that the industry has reached a state of efficiency equal to that attained in the production of various other commodities. But, in looking over the various departments of a clay plant, the writer sees one place where there is room for improvement which would result in a large saving. That point is the coal question which represents one of the most important cost items in the factory.

The term "Buying Well" has been applied to many of the different divisions that go to make up the requirements for the production of a burned clay article. No doubt, the reason that it has not been applied to the fuel end is because of the ignorance on the part of the consumer of how to "buy well" in that direction.

To take up all the points which go to make the power and burning end of a plant more efficient, is beyond the scope of this article, but we might mention some of these points and then, granting that they have been worked out to an efficient basis, will take up the point with which the writer is well acquainted and in which he has had practical experience, namely, the buying of coal on specifications.

THE THREE PHASES OF THE FUEL QUESTION

The fuel problem may be divided into three phases; first, the selection of coal; second, the purchase of the coal, and third, the use of the coal. Under the selection of coal would come the determination of the character and general class of coal to be used, and the selection of the best coal in that class for the money. Some of the factors which govern the selection of coal are, the location of the plant and its requirements, such as design and the operating conditions. The use of the coal in the most efficient manner of course depends on the engineer, burner, fireman, or whoever happens to have charge of this department. But, as has been said, let us suppose that these conditions have been worked out to a high degree of efficiency, there still remains the purchase of the coal.

COAL ONE-THIRD OF COST OF MAKING CLAY WARES

That the purchase of this commodity is important is realized when one considers that it represents about one-third of the cost in the production of clay ware. The purchase of coal on specifications is a practice that has not been followed for a very long period and one may attribute the fact that it is not used to a greater extent, to the lack of the consumer's knowledge of the benefits that he receives, and also, in probably the majority of cases, to the fact that he is totally unaware that he may buy his coal in this manner.

As a proof that the buying of coal on specifications is beneficial to the consumer, several of the large Chicago hotels, mercantile houses, railroads, the Edison Electric Company, and so forth, as well as several of the state institutions, buy all of their coal on this plan. Every year the list of those who buy their fuel on specifications has been increasing and it will be only a question of time when nearly all consumers will fall in line. Why should our industry be one of the last to take advantage of this proposition? Why can we not save on our coal bills, besides, incidentally being sure of a good, consistant coal at all times?

HOW MOST OF US DO IT

Many plants when ready to make their contract for coal for the coming year have various coal companies send in test cars and usually the contract is let to the dealer who happens to send in the best test cars and offers the lowest price. Naturally, the coal dealer will send in only the best coal in such instances and, after the contract is let, his coal is found to vary considerably in quality. There are no means to settle for cars of poor coal because the consumer very seldom knows until the coal is burned that it was of a poor grade, and then what proof has he? The fallacy of this method has been proven many times and the sooner the consumer realizes it, the better it will be for him.

DEFINITION OF SOME OF THE TERMS USED

Before describing how a heat value contract operates, the writer will define some of the terms used.

The heat contained in coal is expressed in British thermal units (abbreviated B.t.u.), a B.t.u. being the quantity of heat required to raise one pound of water one degree Fahrenheit.

The B.t.u.'s per pound "dry" indicates the number of B.t.u.'s contained in one pound of coal after all moisture has been baked out of it, and is an indication of the maximum possibility of the heating value of the particular sample of coal.

"Net B.t.u.'s for one cent" represents the net amount of heat that one cent will buy, and is obtained as follows: Multiply the number of B.t.u.'s per pound of dry coal by the per cent. of moisture (expressed in decimals); subtract the product so found from the number of B.t.u.'s per pound dry coal; multiply the remainder by 2,000 and divide this product by the contract rate per ton (expressed in cents) plus one-half of the dry ash percentage (expressed in decimals).

One half of the percentage of dry ash is added to the price before dividing to compensate for the decreased burning efficiency of the coal in the furnace on account of the physical presence of the ash.

BUYING COAL ON SPECIFICATIONS

The coal companies bidding for the contract guarantee to deliver coal having a certain specified analysis at a certain price, from which the net B.t.u.'s for one cent is figured. This value is then used as the contract guarantee and the dealer offering the largest number of net B.t.u.'s for one cent is awarded the contract. Later, this figure serves as means of checking up your deliveries so that you may know just what you are getting and, by making comparisons with the standard value, economy is bound to come for the reason that, if a uniform grade is not being delivered, you can detect it and know just how much it is off and then set about to correct it.

HOW TO ARRIVE AT THE CORRECT PRICE PER TON

To give an example, let us assume the analysis of a coal to be as follows:

Per cent. Moisture	Per cent. Dry Ash	B.t.u.'s per lb. Dry Coal	Price
10.00	10.00	13,000	$2.50

The net B.t.u.'s for one cent would then be obtained as follows:

13,000 B.t.u.'s in one lb. of dry coal.
×.10 Moisture expressed in decimals

1,300.00 Number of B.t.u.'s to be corrected for, due to per cent. of moisture, and must be subtracted from B.t.u.'s dry.

13,000 B.t.u.'s dry.
—1,300 B.t.u.'s lost due to moisture in coal.

11,700 B.t.u.'s per lb. of coal as delivered.

11,700
×2,000 lbs. in one ton

23,400,000 number of B.t.u.'s in one ton of coal analyzing as above.

$2.50 price per ton
.05 one-half of dry ash percentage (expressed in cents) to offset decrease in burning efficiency due to presence of ash.

$2.55

23,400,000÷255=91,764.8 net B.t.u.'s for one cent.

Inasmuch as the net B.t.u.'s for one cent takes into account the amount of moisture, ash and heat contained in the coal, as well as the price, it therefore furnishes the best basis of comparison between different kinds of coal, because it reduces all coals to the same common denominator, showing at a glance which is the cheapest. This you will find of great value in passing on a number of bids.

THIS CONCERN AVOIDED TWO MISTAKES

The following table shows a number of different bids received by one concern. If the price only had been taken into consideration the purchaser would have made a mistake, as the lowest price (D) was not the cheapest coal. If the heat in the coal only had been taken into consideration, the purchaser would have made another mistake, as the coal of the highest B.t.u. (A) would not have been the cheapest. As it was, he used the net B.t.u. for one cent and purchased the kind of coal (C) from which he could get the most heat for the money.

Kind of Coal	Per-cent. Moisture	Per-cent. Dry Ash	Dry B.t.u.'s	Price	Net B.t.u.'s for One Cent
Pocahontas Run of Mine (A)	4.0	5.5	14,957	$3.20	88,992
Yough. Screenings................(B)	6.0	12.2	13.466	2.75	90,067
Carterville Screenings............(C)	10.5	15.5	12,160	1.65	126,045
Indiana Screenings................(D)	15.0	18.1	11,659	1.60	117,289

EACH DELIVERY IS ANALYZED

A sample of each car or wagon load of coal delivered to the factory is taken and sent to a concern specializing in coal analysis to be analyzed. In this way a test is obtained on all of the coal delivered, and the price or delivered value, as it is called, which the consumer pays to the coal dealer is determined by the analysis.

Assuming that the contract had been made on the analysis as given above and the coal delivered, analyzed as follows:

Per cent. Moisture	Per cent. Dry Ash	B.t.u.'s per lb., Dry
10.85	11.00	12,850

Then the delivered value would be figured as follows:

12,850 B.t.u.'s Dry
× .1085 Moisture expressed in per cent.

64250
102800
12850

1,394.2250 Number of B.t.u.'s to be corrected for, due to per cent. of moisture

12,850.000 B.t.u.'s Dry
— 1,394.225 B.t.u.'s due to moisture

11,455.775 B.t.u.'s per lb. as delivered
× 2,000 lbs. in a ton

22,911,550.00 ÷ 91,764.8 = 249.67
—5.50 one-half of dry ash, per cent. expressed in cents.

244.17 ($2.44) Price per ton or delivered value in cents.

THE OPERATION OF A HEAT VALUE CONTRACT

The following table illustrates the operation of a heat value contract for a period of thirty days, where the consumer received two cars a day, each car being sampled and a composite analysis made of these samples once each week. The contract specifying the following:

Per cent. Moisture	Per cent. Dry Ash	B.t.u.'s Per lb. of Dry Coal	Price	Contract Guarantee Net B.t.u.'s for One Cent
10.5	15.5	12,160	$1.65	126,045

Date	Per cent. Moisture	Per cent. Dry Ash	Dry B.t.u.	Delivered Value
First week..........	10.4	14.5	12.320	$1.681
Second week....	10.7	14.1	12,400	1.687
Third week........	11.6	16.8	11,939	1.590
Fourth week......	11.5	16.4	12,019	1.605

6.563 ÷ 4=$1.64, (the settling price per ton for the month.)

From the above, it is evident that slight fluctuations in ash and moisture may mean a serious loss in the operation of a plant unless the fuel is purchased on the heat value basis.

In conclusion, the writer might state that the consumer who realizes this opportunity of cutting down fuel costs by obtaining an even, uniform grade of fuel had better get in touch with and consult a reputable coal analyst before making his next contract, and buy his coal on specifications.

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U. of I. Students Take Inspection Trip

Members of the senior class in the department of ceramic engineering at the University of Illinois, Champaign-Urbana, closed their text books for three days to take an inspection trip thru many of the large manufacturing plants making ceramic products, and to gain some practical knowledge and information from "first hand" sources.

The first plant visited by the student body was the Number 17 plant of the Illinois Brick Company at Purington, Ill. Here the immense production of 640 brick per minute, the automatic method of setting the brick, and the burning system proved of great interest. Next in line was the plant of the Northwestern Terra Cotta Company, Chicago, where the wonderful possibilities of architectural terra cotta were displayed. From here the students went to the Alliance Company's plant in Chicago, where the fluid casting process in the manufacture of porcelain sanitary ware attracted much attention. Having completed the day's schedule, the party left the same evening, Monday, November 27th, for Streator, Ill.

A visit to the Barr Clay Company's immense paving-brick plant opened up Tuesday's session. The general layout and details of this plant were carefully noted by the visitors before they left for the new paving-brick plant of the Streator Clay Manufacturing Company, where a new continuous kiln in operation was the object of a large amount of interest and study. The sewer-pipe plant of the same company was next inspected. The special feature of this plant proved to be the automatic device used for turning and handling large sewer-pipe.

In the afternoon the students went over the plant of the Streator Brick Company, where a new drag-line excavator with a one hundred foot boom has recently been installed at a cost of $15,000. Altho the plant of the National Drain Tile Company, which was visited next, was not in operation, a general knowledge of the methods in use at this plant was obtained.

Following this, several glass manufacturing plants were visited in the afternoon, the students inspecting the method of making wire window glass as practised by the Western Glass Company, and in the evening watching the huge machines at the American Bottle Company turning out thirty-two bottles a minute from the molten materials.

Two more glass companies were visited before the party reached the pioneer plant of the National Fire Proofing Company at Ottawa, on Wednesday afternoon, and the Chicago Retort and Fire Brick Company's plant at the same point. Both these factories received careful study.

Professor R. K. Hursh and twelve of the senior students made the trip, which proved to be of exceeding interest and great value.

⁂

Constructional work on the new $125,000 plant of the Warrentown (Ore.) Clay Company is rapidly nearing completion. Three large buildings of hollow-tile have been constructed and work is now to start on the erection of four large kilns. Little doubt is entertained that the company will operate early in the spring, since at the rate the present work is being done the plant will be in operating condition even before that time.

¶ A Chicago sewer-pipe dealer figures that delivery equipment which can crawl around the soft and hilly sites of buildings under construction, is a decided asset. The truck shown in the accompanying illustration has a reputation for being able to negotiate the roughest and most difficult hauls.

A General View of a Typical Hudson River Brick Yard at Haverstraw, N. Y. The Brick Are Made and Dried in the Open, Then Burned in Scove Kilns

FINDING *a* MARKET *for* CULLS

Suggestions from Hudson River Brickmakers Looking Toward the Disposition of "Light Hard" and Getting Real Money for Them

By Curtis A. Wessel

THE BAKER sells his "stale" for a cent or so a loaf as chicken-feed; the cigar manufacturer works up or sells to another concern his leaf scraps for the manufacture of "short filler" and little cigars; the distiller dries and presses his mashed grain for export as stockfood to the more economical countries over the seas, and the large coal operator finds it pays to mold his slack and sweepings into briquettes.

But the brick manufacturer—unless he is one of the most progressive of progressives—rarely makes a definite, systematic effort to develop a market for his culls.

In the light of all that has been developed in recent years along lines of commercial efficiency and industrial economy, by such sponsors of new business thought as Mr. Ford and Mr. Patterson and Mr. Whelan, et al., it seems apparent that something ought to be done in this matter of disposal of "light hard," as the by-product is termed in the great brickmaking region of the Hudson valley. "Culls" is the more common term employed in most other sections of the country that have come within the writer's observation.

WHY THE CULL HAS BEEN NEGLECTED

Study of this proposition makes plain that there are two comprehensive basic reasons why it has been so largely neglected. The first is, the state of mind of the producer, which makes more desirable the sale of the standard product and of little consequence the up-cropping of incidental waste. The second is the *seemingly small* proportion of "seconds" materializing from each burn. Joining the two, in the effect of diminishing the importance of the problem, is the existence of local competition which is sure to make it stiff enough work to sell first-class face and side-wall brick without recourse to the cull question.

Hence, whenever the brick man is asked seriously to consider cultivation of an outlet for his by-product, the rejoinder is more than likely to be, "Is it worth while?"

Realizing, no doubt, that the little things are counting more today in every industry, and the brick trade in particular, than they ever did before, the Editors of "Brick and Clay Record" have asked for this review of what some of the eastern brickmakers have accomplished along the line of "light hard" sale. In it there will be presented not only the immediate practices of some of the men in the Hudson valley, but also what some of them have learned by experience and propose to apply, step by step, in the future.

RELATIVE IMPORTANCE OF "LIGHT HARD" BRICK

First of all, to justify this treatment of what has been so often dismissed as a trivial subject, the relative importance of the cull in its true position in the average output must be established. There is no denying that it is only the cumulative effect of the by-product that makes it worthy of consideration. If a yard owner found culls only in one burn out of ten, or if rejections were a seasonal proposition due to atmospheric conditions at the time of manufacture—such as "brews" are sometimes in the brewing trade—the brickmaker might simply charge the waste off to profit and loss and make up the deficit somewhere else.

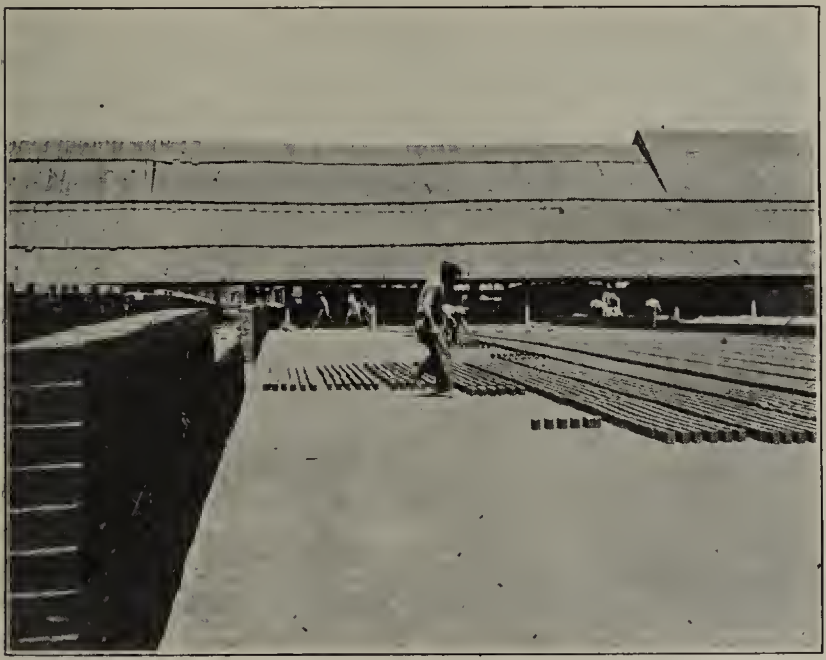
The point is, however, that the cull is always with us. It runs from two to five per cent. of the total output the year 'round, depending principally upon the technical knowledge and ability of the general superintendent and his subordinates in charge of the machines and kiln fires. But it never arrives at the vanishing point.

Two to five per cent. are recognized generally as quite substantial items in the cash book. If a man can clip two to five per cent. off his overhead, he becomes a likely prospect for the automobile salesman. If he clips three per cent. from his payroll by labor economies, he tells his banker about it the next time they are together, and enjoys the cigar that much more. If his financial condition is such that he subtracts the trifle of two per cent. from all his obligations upon their payment within ten to thirty days, he receives the *croix d'honneur* of a "first credit" rating in the big black book. In short, a good deal of business success depends upon the ability to get that two per cent., no matter what form it is in, when it is due.

In a typical annual output of, let us say, 70,000,000 brick, two per cent. culls means 1,400,000—a total that would be considered an exceedingly respectable figure if appearing in the form of a regular order, no matter at what price it was secured under close competition. At a "seconds" price of only five or six dollars a thousand it means from $7,000 to $8,400 cash, annually, which is interest on from one hundred and twenty thousand to one hundred and forty thousand dollars' capital invested, the way they figure it in balance sheets in downtown New York. That is, the brickmaker who avails himself of a hitherto neglected source of revenue increases the cash value of his business—irrespective of the income in a personal way—just as definitely as tho he had been able to sell his entire output at an advance of twenty-five cents on the thousand.

WHERE AND HOW TO DISPOSE OF CULLS

The results are plain. The question is, what to do with culls, and how to do it. The least progressive in the trade let them lie around the yard until—well, until the wind and rain corrode them unto dust or until they just naturally fall into a convenient hole that it would be desirable to run the wagons over, and fill it up. How many "fills" about a brickyard have been made in just this way, with material which it cost real money to burn, only the old inventories of some yards will show.



Turning Over and Hacking the Brick That Are Drying Is Easily One-half of the Day's Task

A much more practical employment for "light hard" finds general adoption in the lower part of the Hudson valley. They build new kiln walls with them before each firing. It is figured that it is quicker and more efficient—speed is at a premium anywhere around New York—to wreck all but the arches of a kiln as soon as the burn has cooled. Then the tossers can go right to work on all sides at once, and the wagons back in from any direction—merely with allowance for the existing arches—without jockeying for position before the entrance or exit that used to form part and parcel of every old-time kiln when the brick were ready. A kiln can be emptied as quickly as there are wagons to get into it, or orders for the emptying, when once the temporary "light hard" walls are razed. Then again, you see, it saves employing more expensive and salable brick for this purpose.

A "Close Up" of a Soft-mud Brick Machine Such as is Used In the Hudson River District

"I am pretty well convinced that the plan of throwing culls into the kiln walls evens up on whatever wastage might otherwise occur," said one large manufacturer. "It is shown by my records that the light-hard proportion runs two per cent. of the total when everything is working at normal. Some years it runs to three per cent. Figure the time of your tossers and teams, and the rapidity with which they can empty a kiln when it is entered from all sides and you will see that there is a saving of better than fifty per cent. along these lines, as compared with knocking out an entrance and egress and letting them in thru that. There is the cost of re-erecting, of course, to off-set this in a measure, and now and then some trouble with the draft because of poor execution, but in the end the manufacturer gets an even break, at least."

This plan, it appears, has a general tendency to lessen overhead by expediting the shipment of the product.

WOULD LIKE TO GET REAL MONEY FOR BY-PRODUCT

Another manufacturer said that he would like to improve upon it by getting real money for culls whenever possible.

"There is this direct drawback in making sales, however," he explained. "The cull—like mortar that is below standard—has come into very grave disfavor in metropolitan building circles. Under the New York code, for instance, they can't be used. Modifications of this code have been pretty generally adopted in the smaller cities of the East. At least, they have practically all caught on to that embargo on culls. Lately I have noted that most of the architects-in-charge of corporate real estate developments in residential suburbs have become equally strict, and it looks as tho we would have to sell our culls to the Allies or the Germans, to throw at each other, if we expect to get money for them."

SUGGESTS SELLING TO SMALL BAKERS FOR OVENS

A third party discussing the subject had made a little more definite progress. He played up all his "light hard" that was not utterly beyond redemption to the small bakers. The bakery market, for oven construction purposes, has long been recognized as a prolific source of income along high-grade lines for brick men. It has been said that within the last ten years more capital has been invested in the baking industry than in any other but the automobile. However, it goes without saying that the large wholesale bakery is no customer for culls. The best the clayworker can provide is none too good for it, and the front walls of the ovens are more likely to be of an enameled brick, selling at from $70 to $90 per thousand, than otherwise. However, the little retail baker has grown in resources and physical extent right beneath the nose of his big brother who sells to grocers, and so forth. He is very likely, nowadays, to have five or six stores, and to bake in at least two of them. Besides, he operates principally upon short-term leases, so that he can move the stores with the trend of residential population and he is averse to making too elaborate oven improvements at any one stand. The retail baker, therefore, even in the city where "culls" are barred from dwelling or business building construction, remains a potential consumer of "light hard." All of which facts this brick man pointed out, with the convincing conclusion that his dealers in the city were getting six dollars for "light hard" and making the baker send for them with his own wagon.

AVOID DELIVERY WHICH WIPES OUT PROFIT

This brings us down to the consideration of a very fine point in transacting a business in culls. That is, never deliver them. Delivery costs have crept to almost a confiscatory level at most brick yards, particularly metropolitan ones, as every proprietor who has to pay feed or gasoline bills knows. It is worth remembering, therefore, that the "light hard" customer should be impressed with the extremely low figure he is paying for that product. Certainly it is from a dollar and a half to two and a half below the regular figure. Human nature, according to brick men who have established the iron-clad rule, is such that the patron of the cheapest line will hesitate to demand concessions, such as free delivery, that are specifically stated as contraband. "This brick is going to you very cheaply. It is practically the same as our stock hard, save for imperfections which render it unsuitable for a facing job. Hence, we cannot undertake delivery of it anywhere. This is the yard price," is a message that brings the most grasping patron meekly with his own team, experience proves.

Thus do the manufacturers reduce to lowest terms the cost of selling that pesky cull.

RURAL MARKET MOST LOGICAL ONE

The most logical market, in the final analysis, appears to be the rural one. A few manufacturers who have made their first test-outs of this field say that it promises great capacity and is reasonably easy to sell. If this type of brick comes under municipal ban, it seems in many respects to be all the more welcome on the farm.

The farmer is, by the nature of his location, one of the best prospects existing for the brickmaker. He is accustomed to being his own architect and, upon most minor jobs of farm improvement, his own builder. He has a born instinct for close buying—money itself is all his future, the dependence of his declining years, and he wants to put away as much as he can lay his hands on. From his farm he derives the necessities of living and, despite the education toward city luxuries accomplished in him by the farm press and the magazines, he remains as shrewd a buyer of any commodity as is likely to be met up with in a day's journey thru any of the city by-ways.

The brick man looking to the farm market for culls, therefore, first takes into account the possible usages to which his product may be put. There are floors for the corn crib to keep out predatory rats, floors for the cow barn affording reasonable resiliency for bovine hoofs without the dead cold of damp concrete, floors for the stable yard, which must be absorbent to a degree, since drainage on a farm is not the simplest thing in the world and floors, and troughs for the ice-house and dairy. In all of these respects, the average farm will prove to be a consumer of from ten to thirty thousand brick that are not sightly enough to command the city market.

BRICKMAKER MIGHT DO A MAIL ORDER BUSINESS

With these points of sale in mind, it remains for the brickmaker to adopt the proper means of selling the farmer. The mail is the logical medium, say those who have tried and succeeded. The farmer reads his mail more attentively than the city man, and is not so particular as to whether the color of the ribbon imprinting the salutation matches exactly the shade of the text, or not. If a letter says anything of interest to him, he will think the proposition over and grant an inquiry. The country newspaper, which is invariably prolific in news of mortgages recorded and satisfied, farms newly bought or sold and other items indicative of ready money in the pocket of this or that individual, provide one of the best bases for a mailing list that a seller to the farm trade can seek. Duly constituted agencies in every city make a specialty of farm mailing lists, besides. The sales letter should be simply phrased, stating that the writer has a quantity of light hard brick especially suited for purposes as described in the preceding paragraph, at an attractive price *f.o.b. the yard.*

Is the farm market going to be the outlet for the two to five per cent. cull output of the brick industry of the future?

* * *

New Plant to Serve Texas Panhandle

The Post City (Tex.) Brick and Tile Company, recently organized with a paid up capital of $10,000, will soon begin the erection of its plant about a half mile southeast of Post City. The site is adjoining the railroad, and the raw material to be used is to be taken from a solid, unbroken deposit of red shale, which occurs in large quantities and is of exceptional quality. There is little overburden to be removed, and the shale is known to extend to a considerable depth.

While the plant has been financed wholly by local capital, the territory which it will endeavor to serve extends over a large portion of the panhandle of Texas. There is not in operation another plant of the same character within several hundred miles of Post City, and it has been ascertained that more than 12,000,000 brick have passed thru that point within the first nine months of this year to destinations north, all of which material came from plants several hundred miles south of Post City.

The managers of this new enterprise state that it will be equipped with modern machinery for the manufacture of the several products at the lowest possible cost. Building brick is to be the first product that will be put on the market. This will be followed by paving-brick, drain-tile and other clay products. The formal incorporation of this company will be made within a short time.

BRICK *to be* PRECIOUS *in* N. Y. *this* WINTER

"IT will take a whole lot more than winter to put a crimp in the building business of old Manhattan," said a prominent builder during the last week in November, and there is nobody who will say that man spoke anything but the truth.

"Building is brisk, despite the high prices," says the New York "Times," and it is truth again. Sharp advances and plenty of them have neither hampered nor hindered the building business. Since the first of November various building materials have done the sky rocket act. Brick, for instance, "wouldn't be in style," as it were, if it did not advance a quarter a week.

PREDICT CHRISTMAS BRICK AT TEN DOLLARS

The story of brick and its advance would make good reading. Up, up, up it is going and, with every "turn of the wheel," the demand grows better. The higher the price, the better the demand—seems to be the program. Thanksgiving season saw Hudson River commons quoted at $9 base, with some bringing $9.25, and they do say here in Manhattan that Christmas brick at ten dollars would not be at all surprising. This may or may not be a guess. "Brick and Clay Record". is not in a position to directly say, but it is a fact that never before in recent years has brick gone to such prices and by such leaps and bounds as it has in this year of 1916 and month of November. According to the handwriting on the wall, ten-dollar brick is not far away. Brick may be brick, but just the same gold nuggets could hardly be more popular than Hudson commons just now.

ONE DEALER BREAKS DELIVERY RECORD

This is the season of the year when dealers stack for winter reserves. Usually, the most thrifty did the most stacking, but it appears that thriftiness or something else as inspiring and with equal energy is spurring on all the dealers this year. Under normal conditions, it has been considered a good day's work for 50,000 brick to be ridden from a barge to a stack or jobs, but on Friday, November 24th, one dealer broke the record. Following a day's rain, this dealer rode 141,000 brick to a job. This is one indication of the abnormal demand.

SHORTAGE WITH CLOSING OF HUDSON IMMINENT

Close of navigation is not far off. Perhaps, before another issue of this magazine is off the press, the Hudson will be closed. Dealers are short and, with winter rapidly approaching, there is precious little available brick in storage. Another condition that is annoying is that fancy prices are being paid barge men by transportation companies to induce them to take care of freight movements in New York harbor. This takes them away from the river brick trade and creates a shortage. Add to this a shortage of labor to load the barges and what more trouble could a brick manufacturer want?

There were 24,000,000 brick in the New York yards Saturday, November 25th, and only 12,000,000 en route, and about 8,000,000 of these were sold before they left the brick yards. Second-hand brick, usually cheap at this season of the year, jumped from $4.50 a load of 1,500 to $5 even the last week in November. Raritan brick is not quoted. One reason is inability to get men to load the barges at Sayreville.

Right in New Jersey, which the Raritans call home, the price is around $10 a thousand and in Newark, only seventeen miles from Sayreville, the prices are $11.50 to $11.75 and brick is not plentiful.

BUILDERS NOW PLACING 1917 ORDERS

Builders see no immediate cut in prices and certainly there is no indication at this writing of any let up in the demand. In order to get assured action on jobs in the spring, summer and even fall of 1917, they are placing their orders now. Hollow-tile fireproofing, not to be outdone by brick, advanced November 25th a few cents on each size.

Brick and clay products probably hold the center of the stage in Manhattan and New Jersey building interests but lime, cement, sand, plaster, lumber, iron and other products having to do with the building trades are all leading a merry chase for high records on the price scale.

But times are prosperous. Real estate buyers and operators find cash plentiful. Capital is seeking good mortgages at four and one-half and four per cent. "Funds have been accumulating in the savings bank, insurance companies and large estates, and there has been a demand for these funds from the real estate market which means new business," said M. Morgenthau, Jr., recently.

BRONX NEEDS FIFTY MILLIONS IN BUILDINGS NOW

Manhattan, Kings, Queens, Brooklyn, Richmond and New Jersey all report 1916 coming to a close with the building business better than it has been for many years. The Bronx has been backward, but now comes the news that the Bronx trade needs $50,000,000 worth of new business buildings at once and, consequently, all eyes are turned to the lively borough to the north of Manhattan. The Bronx Board of Trade is starting a vigorous campaign among builders, land-owners and investors thru its industrial bureau which reports overwhelming demands for space from firms in all sections. The influx of new firms during the past year has been remarkable but new building has not kept pace with it, and now the Bronx is face to face with a problem of having no place to offer the homeseeker or factory owner or loft tenant. The demand must be met and met without delay, so already plans are under way for a big building boom in the Bronx in 1917. The Board of Trade Bureau is trying to emphasize the fact that a standard industrial building of a type for which there is a country wide demand—fire-proof, with plenty of light, well ventilated, with spacious stairways, suitably protected according to the fire laws—is a valuable asset. It is what is needed in the Bronx. The Bronx with its fifty miles of available industrial waterfront is destined to become New York's industrial center, according to the trade board, and it is a condition for which the Bronx must prepare.

NEW YORK CHESTY OVER PROSPECTS FOR 1917

With a nest egg of $50,000,000 worth of new buildings in the Bronx alone almost a certainty, New York proudly throws out its chest and, in effect, says: "Yes, business for 1916 is brisk, has been a record breaker and sky-high prices notwithstanding, business remains good, but in 1917, it is going to be still better."

* * *

The Western Paving Brick Manufacturers' Association recently met at the offices of its secretary, Mr. Thurston, at Kansas City, Mo. The meeting was the regular monthly gathering and only the routine business was entered upon. The association announced that its annual meeting would be held at Kansas City on Friday and Saturday, January 19th and 20th.

* * *

The brick manufacturers operating in the Springwells (Detroit) district are pleased with the results of the recent election at which the voters of Detroit disapproved of the annexation of Springwells to the city. This is in line with what the brick manufacturers have been urging and it means that Springwells will continue as an independent village.

COST ACCOUNTING *for the* CLAY PLANT

Completing the First Half of the Uniform Cost Keeping System That is Being Presented to Readers of This Magazine Without Charge

By A. J. Huac

ALMOST FOUR MONTHS have elapsed since the first installment of "Cost Accounting for the Clay Plant" was published and, during that time, we have received directly or indirectly many compliments on this, the first real effort to provide the clayworking industry with a uniform system for keeping its costs. A growing interest in the information and tables that are being published under the above heading is very much in evidence and, for this reason, we are glad to announce that with the accompanying installment, the presentation of the first half of the system has been completed.

According to present indications, those who are interested in this cost system will not have to wait longer than the last issue in March, 1917, before having the entire method in hand, in a form that is easily preserved so as to be made permanent. As has already been explained, the very nature of the system, with its thirty-two tables together with the explanations therefor, makes it impossible to publish it in two or three issues. Therefore, it has been found advisable to spread it over a number of installments and, while this entails some delay in getting the system in its entirety, still those who are following it closely will find that this method of presentation gives them a chance to study the system more in detail, than if given to them all at one time.

In the meantime, while we are all waiting for the system to be brought to a close, it would be well for those who do not have a complete set of the installments which have been published to date, to secure these at once, as the reserve copies of the back numbers are rapidly being depleted.

The explanatory matter which leads to a better understanding of the fifteenth and sixteenth tables follows:

ADMINISTRATION

The work of this department is the direction of the various activities and departments of the business. The items are practically self-explanatory. The investment is in office building, furniture, and so forth.

TABLE NO. 15—ADMINISTRATION

No. Line	Post From		Post To	
1	T20-XXIII	Executive Salaries		
2	T20-XXIV	Office Salaries		
3	T20-XXIX	Office Expenses		
4	T20-XXX	Traveling and General Expenses		
5	T20-XIII	Repairs, Tools and Supplies		
6	T22-XII	Interest, Taxes, Insurance and Depreciation		
7	T22-32	Interest on Stock and Bonds in Excess of Plant Value		
8	T20-XVII	Interest on Bills Payable		
9	T20-XXXVII	General Expense Not Governed by Any Other Item		
10	(1 to 9)	Total		
11	T20-XXXI	Credits—Discounts on Invoices, Interest at Bank and on Bills Receivable, R. R. Claims, etc. (Includes bad debts, also).		
12	(10—11)	TOTAL ADMINISTRATION COST	(17)	
		Divide as follows:		
13	See below	Percentage to Superintendence		
14	(12 × 13)	Total to Superintendence	(T13-4)	
15	See below	Percentage to Selling		
16	(12 × 15)	Total to Selling	(T14-13)	
17	(14 + 16)	TOTAL ADMINISTRATION COST		

Line No. 17 must also equal Line No. 12.
Information for posting to lines No. 13 and No. 15 to be furnished by the management.

SHOWING HOW FIRST FIFTEEN TABLES ARE TO BE RULED FOR FORTY-EIGHT COLUMNS, FOR COMPARISON WITH PREVIOUS YEAR

(Entire sheet to have four columns for each month, forty-eight in all.)

Month of		Year Ending		Month of		Year Ending	
January 1916	January 1915	January 1916	January 1915	December 1916	December 1915	December 1916	December 1915

Horizontal total lines should be made to suit the different tables.

We have added line No. 7 because most plants have a stock or bond issue in excess of the value of the plant. This item can easily be determined by each individual management.

We have added on line No. 11 the credits to be allowed. When material is bought for factory use, it should be charged at invoice price. If a discount is to be allowed for payment within a specified time, it is really the administration department that should be given credit, if it is taken advantage of. It is the administration department which makes this possible by having enough money on hand. This method will also obviate the entries of many small items to the various departments.

The total administration cost is divided into superintendence and selling. The proportion to be used must be determined by each manager for his own business. It can easily be determined by keeping a record of the time spent for each division by the various members of the administration department. This record, if kept for one month in the year, can give very closely the percentage which ought to govern for the full year.

HOW FIRST FIFTEEN TABLES ARE TO BE RULED

In our opening article we said that one of the main advantages of the system was that the cost for the current month could be compared with the corresponding month of last year, and the cost for the past twelve months could be compared with the twelve months previous.

We show in this issue how to rule the first sixteen tables of the set in order to gain this advantage. The completed tables have forty-eight columns.

FINAL COST

This table represents the real pinnacle of the series. Practically all the information on all of the other tables is gathered together in order to post it to this sheet in the proper place.

This series is based on a factory which has five classes of output or five sizes of ware of different weights but made of the same clay. Factories making drain-tile, flower pots or several kinds of fire-brick and shapes will find this table especially advantageous. Many paving-brick plants make paving-brick, wire-cut brick, rough surfaced face-brick, and so forth. They also should use several classes in this table.

All of the preceding tables have been worked out on the tonnage basis to make the work at this point easier. We establish a "differential" as used in lines Nos. 9, 19 and 26, based on the cost of the machine work. This is simply a percentage to show how much the cost of the machine work of one class is above or below the average cost. We presume that the cost of drying, setting, burning and emptying of any particular class of ware varies from the average cost in the same proportion as does the machine work.

In this table, therefore, we post the cost per ton of each department and multiply by this differential. In the case of a factory making only one class of ware, the use of this differential will be unnecessary. Multiplication by the tons per thousand will give quicker results.

All of the losses, or the equivalent thereof, are added to the cost at the proper points.

We have based this series on the supposition of having two grades of culls, both of which may have a value to customers or to the plant itself.

The part of the table below line No. 32 can best be explained by figures. Suppose Class A represents four-inch drain-tile,

Line No. 32 would then be	$ 16.00
33	15%
34	2.40
35	13.60
36	10.00
37	3.60

TABLE NO. 16—FINAL TOTAL COST OF PRODUCT

Line No.	Post From	Column No.	Post To	JANUARY, 1916						JANUARY, 1915							
				Tons I	Class A II	Class B III	Class C IV	Class D V	Class E VI	Tons VII	Class A VIII	Class B IX	Class C X	Class D XI	Class E XII	Tons XIII	Class A XIV
1	T1-21	Clay Per Ton Including Stripping															
2	T3-13	Preparing Clay Per Ton															
3	(1 + 2)	Total Per Ton															
4	See below	Tons Per M. Each Class															
5	(3 × 4)	Cost Clay Per M. Each Class															
6	T4-13	Making Per Ton															
7	T5-13	Drying Per Ton															
8	(6 + 7)	Total Making and Drying Per Ton															
9	T25-43	Differential for Each Class	(19)														
10	(8 + 9)	Total Making & Drying per M. Each Class															
11	(5 + 10)	Total Cost Dried in Drier Per M. Each Class															
12	T26-39	Drying Loss Percentage															
13	(11 × 12)	Add to Cost															
14	(11 + 13)	Total Cost Dried Per M. Each Class															
15	T6-12	Setting Per Ton															
16	T7-13	Burning Per Ton															
17	T8-12	Emptying Per Ton															
18	(15 + 16 + 17)	Total Setting, Burning and Emptying Per Ton															
19	(9)	Differential for Each Class	(26)														
20	(18 × 19)	Total Setting, Burning and Emptying Each Class Per M.															
21	(14 + 20)	Total Cost Emptied (with no kiln loss)															
22	T29-36	Kiln Loss Percentage															
23	(21 × 22)	Add to Cost															
24	(21 + 23)	Total Cost Emptied (with all losses figured)															
25	T10-11	General Labor Per Ton															
26	(19)	Differential for Each Class															
27	(25 × 26)	General Labor Per M. Each Class															
28	(24 + 27)	Total Cost Per M. Each Class to This Point															
29	T30-36	Yard Loss Percentage															
30	(28 × 29)	Add to Cost															
31	(28 + 30)	TOTAL MANUFACTURING COST	(36)														
32	T32-34 II-VIII-XIV, etc.	Average Gross Sales Price Per M. Each Class															
33	T14-19	Grand Total Distributing Cost Percentage	(41)														
34	(32 × 33)	Distributing Cost Per M. Each Class															
35	(32 — 34)	Average Net Sales Price Per M. Each Class															
36	(31)	Total Manufacturing Cost Per M. Each Class															
37	(35 — 36)	Average Profit Per M. Each Class															
38	T32-32 I-VII-XIII, etc.	Quantity Sales, Each Class															
39	(37 × 38)	Apparent Profit Each Class Total															
40	T32-36 VI-XII, etc.	Total Value Cull Sales Each Class															
41	(33)	Grand Total Distributing Cost Percentage															
42	(40 × 41)	Distributing Cost of Culls, Each Class															
43	See below	Inventory Value of Culls, Each Class															
44	(42 + 43)	Total Distributing Cost and Inventory Value Culls, Each Class															
45	(40 — 44)	Gain Equals Total Cull Sales Minus Total Cost															
46	(44 — 40)	Loss Equals Total Cost Minus Total Cull Sales															
47	(39+45) or (39 — 46)	Absolute Profit Each Class															
48	See below	TOTAL PROFIT ALL CLASSES															

Line No. 48 equals the total of all items on Line No. 47.
Line No. 4 to be filled in by management.
Line No. 43 to be filled in by management. Look up details of Line No. 15 on Table No. 17.
Line No. 48 should approximately Equal Line No. 34 on Table No. 17.

OUTLINE OF TABLE FOR No. 16 FOR FULL YEAR'S USE

Post To	Month of		Year Ending	
	January, 1916 (Six columns as shown)	January, 1915 Six columns.	January, 1916 Six columns.	January, 1915 Six columns.
		(Repeat twelve times, one for each month.)		

38	35,000
39	$ 126.00
40	25.00
41	15%
42	$ 3.75
43	18.00
44	$ 21.75
45	3.25
46	———
47	$ 129.25
48	?

The columns for the monthly and yearly comparisons are enlarged on this table to accommodate the different classifications. Otherwise, the columns are duplicates of the previous tables.

* * *

Shows Advantages of Clay Tile Hog Houses

Hollow-tile hog houses of four different designs are completely described in a new booklet on hog houses recently issued by the Permanent Buildings Society of Des Moines, an organization that is supported by a number of Iowa clay products manufacturers.

Photographs, drawings and sectional views of the Iowa, semi-Iowa, monitor and Nebraska types of hollow-tile hog house are shown in the booklet and the cost of each type is given, together with a short sketch on its particular advantages.

Supplementing these illustrations is some valuable information on the comparative costs of this type of building and that of the antiquated, unsafe and insanitary frame structures which have by courtesy been called hog houses, brought out forcibly and clinched by the statements of a few farmers who have used hollow-tile in the construction of these buildings. Fire-safety, beauty, low upkeep expense and negligible depreciation are presented in an interesting manner in the booklet.

But the pig himself is by no means left in the background. Such dignified terms as "scholar" and "student" have been applied to His Honor. One reason for this is because the hog has shown, in practical tests, a decided preference for the warm hollow-tile floor as a sleeping and resting place, over the solid cement or concrete "carpet" frequently used.

These booklets are being distributed free to farmers and cannot fail to have a stimulating effect upon the construction of this type of hollow-tile farm building.

* * *

A fire in the basement of the building occupied by the Cincinnati (Ohio) branch of the General Film Company recently demonstrated strikingly the fire-resisting qualities of hollow-tile. The blaze started among old films stored in the basement, and the closing of a fire-door confined the fire to that part of the building. It burned fiercely with the film to feed on and a gas flow from the furnace helping out, a number of explosions resulting. The floor above, constituting the roof of the basement, was of hollow-tile laid in concrete ribs, like the rest of the building. The only damage done was a jarring loose of some plaster. Not a bit of damage occurred in any of the floors above the basement, and the only loss was the destruction of the old and comparatively worthless film.

MARKETING *the* PRODUCT

Helpful Articles and Timely
Suggestions for the Dealer and
the Manufacturer's Sales Force

A CONCERN THAT PUT UTILITY INTO A FACE BRICK EXHIBIT

SELLING THE WARE is not limited to calling upon prospective customers and extolling the merits of the goods to be sold. A silent appeal to the prospect often accomplishes as much, if not more, than much shouting in his ears. For this reason, advertising has grown to its present proportions and bids fair to continue expanding in an unlimited degree for some time to come.

A great many ways of advertising burned clay building materials have been tried, the story of which has often been told in these pages. However, a new way of appealing to the desires of the prospect and making him want to buy a product is seen in the wonderful office building erected by the Reynoldsville (Pa.) Brick and Tile Company early last year. As an effective display of the products made at this company's plant, the office building in question certainly does its work well. It is a permanent advertisement to all who visit the plant on business or for some other reason and, in a town where not a small proportion of the sales are made in the office, a building such as will be described in the following paragraphs is of particular advantage.

"When our company concluded that it would build a new office building, we decided that not only would sufficient room be provided for taking care of the business of the company, but an effort would be made to show the various effects that can be produced in the use of face-brick," writes President Clyde C. Murray, recently. "We feel that we have one of the most, if not the most, comprehensive display of face building brick of any plant in the country."

WALLS OF THE BUILDING ARE HUGE PANELS

One of the accompanying illustrations shows the front view of the building in question. While it cannot be plainly seen, the foundation is of full range red rough-textured brick, laid in white mortar with an American running bond, cut flush joint. Above this, as may be more plainly seen, was laid a soldier course of brick in buff mortar, while the main portion of the building is laid up with a Dutch bond, yellow mortar being used with cut flush joints.

The upper portion of the building is laid in a special bond, yellow mortar and cut flush joints. All windows are surrounded with soldier courses. All soldier courses and trimmings extend one inch beyond the main portion of the wall.

INTERIOR OF STRUCTURE IS ONE LARGE EXHIBIT

The building measures twenty-eight by thirty-two feet four inches. The entire basement is used for the storage of mortar colors. The first floor is divided into four rooms. The time register room is five by sixteen feet; the general office is twenty-one by sixteen feet; a private office measures thirten by fourteen feet, and the supply room is thirteen by fourteen feet also. The second story of the building is all one room and is used for drafting purposes and for filing correspondence.

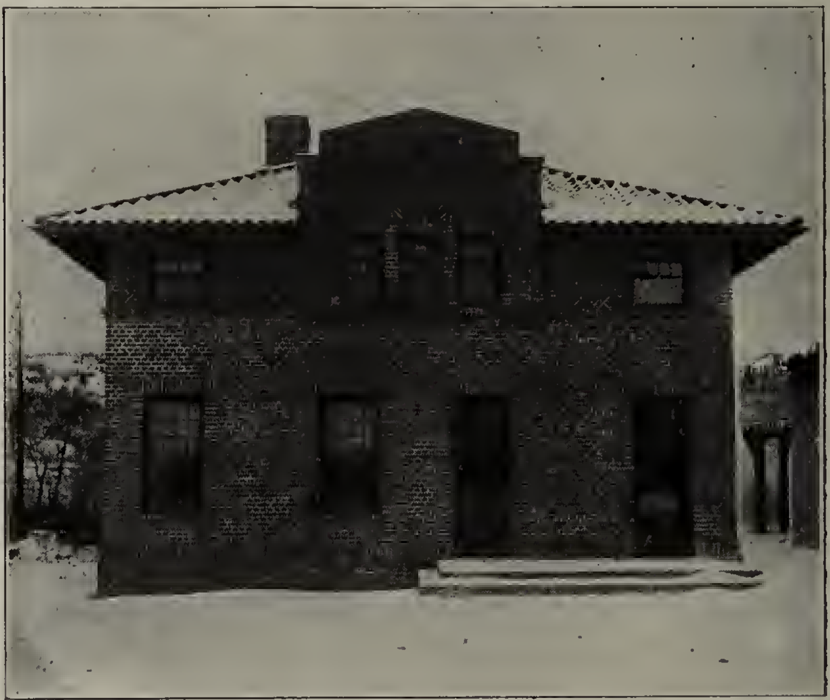
The time register room is entered from the exterior by double doors and the time clock is located between these doors, thereby allowing employes to enter the left-hand door, register their time, going out by the right-hand door and reversing this order when leaving the plant in the evening. There are eleven panels, exclusive of the brick used for trimming, in this room. The room is separated from the business office by a brick partitition four feet high, the top of this partition being finished with with a very nice quarter-sawed oak cap.

The business office is the general work room. There are a total of forty-one panels in this room, each being separated from the others by a header course of cherry red brick, laid in white mortar with cut flush joints.

Another of the accompanying illustrations shows the beautiful brickwork that has been laid about a pair of doors, the one on the left leading to the private office and the one on the right to the supply room.

EVEN THE TRIM IS OF BRICK

Omitting a detail description of the panels in this building, which are to be seen everywhere in profusion and, turning more to generalities, it might be said that the trim over all of the windows is accomplished in two and one-quarter inch red rough-textured cubes laid in various colors of mortar. The border between the windows, as may be seen from the third of the accompanying illustrations is of various shades and textures and is worked out to harmonize very prettily with the beamed ceiling, the beams of which are finished in mission oak, the panels being built of wall board and finished in dark green. The floor in the time register room is of buff tile of the company's own manufacture. The



Front View of the Reynoldsville (Pa.) Brick and Tile Company's Handsome Office and Beautiful Brick Display

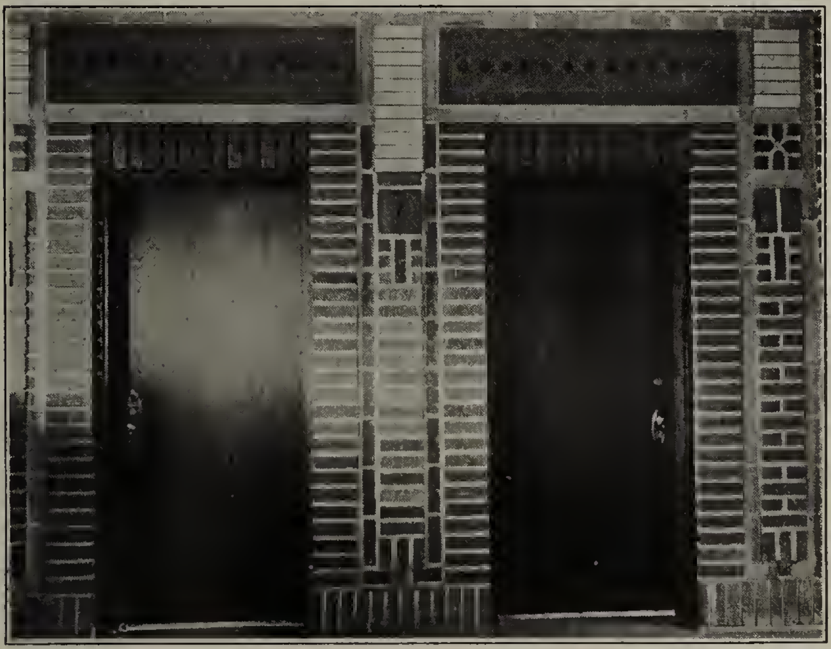
floor in the main office is of sawed oak. Both of these rooms are heated by live steam from the coils of the plant, the radiators being concealed beneath the floor and drawing fresh air from the outside of the building.

PRIVATE OFFICE A WORK OF BURNED CLAY ART

In the private office, which has already been mentioned, is a wonderful fireplace worked out in rough-textured brick with particular attention being given to the color scheme. This is a wood fireplace and is the only means of heating the private office. The panel to the right of the entrance door into the private office is laid in full range, red, rough-textured brick, using a Dutch bond with yellow mortar in which grit was mixed to produce a rough effect. The color of the mortar, the cut flush joint and the size of this panel make it one of the most attractive in the entire display.

The floor of this private office is of red tile of the company's own manufacture. It has a beamed ceiling much the same as the business office, being finished in early English with a wall board between the panels in tan.

The private office has, exclusive of the mantel, sixteen separate panels, all of a rough-textured red brick. Aside from the one already described in this room, there is another large panel of rough-textured brick laid with an English bond in brown mortar with a raked joint; one of full range rough-textured brick American bond with headers every fifth course, white mortar and cut flush joint; one of full range rough-textured brick made by this company, American bond, brown mortar and a raked joint; one in red rough-textured stretchers with dark headers laid Flemish bond with raked joints and the same combination with white mortar and a cut flush joint. All of the border panels between the windows are of rough-textured brick worked out in special shapes. The trim for all of the doors and windows in this office is in soldier courses and headers in dark flash brick laid in brown mortar with raked joints.



Artistic Brickwork That Has Been Laid About a Pair of Doors in the Reynoldsville Brick Company's Office. The Door on the Left Leads to the Private Office and the One on the Right to the Supply Room

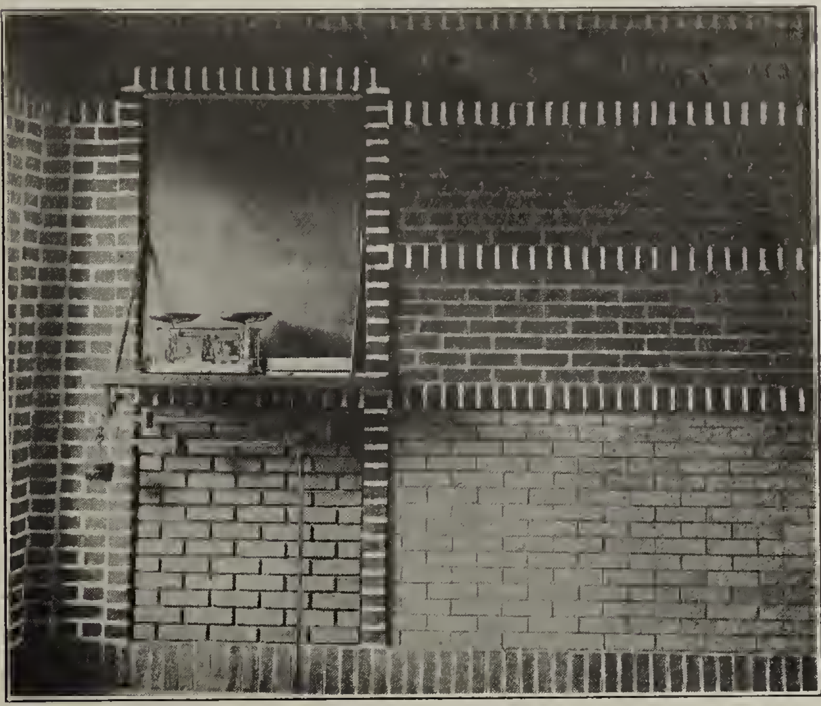
SECOND FLOOR AND SUPPLY ROOM MORE MODEST

The supply room is constructed very solidly but without any effort at display. In this room the company has its safe and live correspondence files, so that the brickwork is practically all covered with shelving, cupboards and so forth.

The second floor is one large room finished in buff rough-textured brick with white mortar and cut flush joints. The ceiling of this story is of plaster board. As has already been mentioned, this room is used largely for filing and for patterns of special and standard shapes. The roof of the building is of red tile manufactured by the Ludowici-Celadon Company, Chicago.

BUILDING FOR THE FUTURE, IS CONCERN'S POLICY

The Reynoldsville Brick and Tile Company was incorporated on September 2nd, 1902, and from that date has followed its original policy of building for the future, as is evidenced by the "silent salesman" office building which it has erected. At the present time there are only two of the fifteen original stockholders interested in the company. The plant has a daily capacity of 40,000 brick, making an annual output of approximately ten millions. Three years ago this company leased the property of the Sykesville (Pa.) Clay Product Company, with a production of 5,000,000 brick annually, and has since operated that plant in connection with the one at Reynoldsville.



Some Idea May be Gained from the Above Illustration of the Way in Which the Brick Trim Was Handled

The company announces that it has just closed a deal for the purchase of the Sykesville Clay Product Company plant so that it is now the owner of two factories.

In the earlier days of the concern it manufactured largely common and hollow-brick and hollow building tile. Later it started to make paving-brick. At the present time, the output of the Reynoldsville plant is about one-third wire-cut-lug pavers, one-half rough-textured brick in a full range of colors and the remaining one-sixth in a buff face-brick and red wire-cut smooth face-brick. The market for this company's product is found largely in the East. It does, however, enjoy considerable business out of all the territory east of Chicago. The product of the Sykesville plant is for the most part marketed in Boston, Mass., and Detroit, Mich.

SPICY SUGGESTIONS FOR THE SALESMANAGER

Don't Forget the Owner

"While the architect is of first importance in connection with the solicitation of face-brick business," said a clever salesman not long ago, "the owner is the man who pays the bills, and he is the chap you have got to sell. Consequently, while influencing the architect, it is absolutely necessary to get in touch with Mr. Owner and get his O. K. on your proposition."

The average architect, this salesman continued, does not object to having the owner solicited, but it is necessary in all cases to get his consent. Some architects are so insistent on their professional dignity being respected that they will not permit their clients to be seen in connection with the use of certain materials, but such men are the exception. In most cases, all that is necessary is to ask permission to present the merits of the brick to the owner, and it will usually be forthcoming.

"The owner is getting to be more prominent in the situation," added the face-brick man, "because of the increasing amount of speculative work which is carried on. In most cases of this kind, the architect is employed merely to draw the plans, the owner letting his own contracts and buying or specifying the materials to be used. I should say that in Chicago the amount of speculative business in the apartment house field, for example, is nearly fifty per cent., which shows how closely the owner must be followed up in this connection."

⁂

State the Truth

"How can I convince customers that the increasing prices of brick are reasonable and just?" complained a brick dealer not long ago, viewing with deep disgust a circular from one of his connections announcing increases all along the line "Here are increased figures on brick upon which I have made prices, tentatively; and, of course, if I handle the business I'll have to get the higher price."

This brings to mind the story of a Russian peasant, before the big war, who wanted to get his son off from both military service and compulsory schooling, and was afraid to tell the boy's age. "If I put it too low he will have to go to school. and if I put it too high he will have to go into the army," he told a friend. "What shall I do?" "Why not tell the truth?" suggested the friend. "Then he will have to do neither."

Just now the simple, solemn truth ought to be enough to convince any man of intelligence that the increases in brick prices are extremely small, compared with increasing costs to the manufacturer. Labor is probably the biggest item in the brick manufacturers' cost; and labor was never more scarce or better paid than at the present time. Fuel is another big item; and everyone knows what the coal situation is. There may be times and there may be trades, in which higher prices look like a hold-up, but the brick trade. at this time, is not in that category. Lay the cards on the table, and let the customer see for himself.

⁂

Telling How It Is Done

Manufacturers in various lines have learned that positive sales arguments may be built on descriptions of how their products are made. Americans seem to have an unfailing curiosity regarding such subjects, and the relation of technical processes, usually suggesting unlimited care and effort in the production of goods, suggests to them the desirability of testing their quality by actual use. Thus is explained the tendency of manufacturers whose goods are sold by retail merchants to supply window displays showing the movement of the raw material thru the various stages of manufacture to the finished article.

The Hartford Faience Company of Hartford, Conn., which is one of the leading manufacturers of electrical porcelain, has been describing its methods so that those in the electrical field will understand with what care its porcelains are made, and the extent of the equipment needed to produce them. A recent description of this kind contained the following:

"Nine great kilns measure the capacity of our enlarged plant. Clay pots, called 'saggers,' are filled with the porcelain ware as it comes from the finishing and glazing departments. From floor to top, the kiln is loaded with filled saggers, the kiln opening is bricked up and banded and the fire is lighted. From thirty-two to forty hours a temperature of 2,500 degrees Fahrenheit is maintained. Uniformity in firing is an essential in turning out a finished electrical porcelain, of even color, accuracy in size and free from checks and flaws."

It should be noted that the familiar facts of manufacture, which the clay products manufacturer may feel are too well known to make description valuable, are entirely new to many prospective purchasers, who can be freely influenced thru telling the story, which has the charm of novelty to them, no matter how familiar it may be to the manufacturer himself.

⁂

Planning the Winter's Work

A brick salesmanager was commenting with interest on an article in a recent issue of "Brick and Clay Record" having to do with the development of winter business.

"My off-seasons are pretty full as it is," he said, "and tho there isn't so much building going on in the winter, I don't seem to have any trouble keeping busy during the cold weather.

"This is simply the result of having a systematic method of following up prospects. There is a lot of work on the architects' boards and, as new jobs come out and we get information about building that is to be done next season, we get on the trail and pull all the wires possible so that when April showers and May flowers arrive, our brick will be in the foremost position.

"There is no necessity for any man in the brick business twiddling his thumbs during the off-season; at least, I have never found it possible to take a vacation during the winter-time."

⁂

Delivering the Goods

Selling, of course, involves delivery and the salesman is interested in having his customer get the goods. He is concerned with the time, manner and method of delivery.

Therefore, the story of how the Salt Lake Pressed Brick Company of Salt Lake City, Utah, managed to deliver the brick to be used in the erection of a two-story business house at Vernal, a new town which is being developed by the opening of the Uinta Basin, is of interest to those engaged in selling.

There is no railroad to the town, and the question of transporting the material was a serious one. Finally, it was suggested that the parcel post be used. After consideration it was decided to do this, and the brick was packed in crates containing ten and weighing forty-eight pounds each. The postage on each crate was fifty-two cents, as the basin is in the second parcel post district from Salt Lake. The postoffice handled the shipments largely by automobile stage, a fifty-five-mile section of the journey being taken care of in this way. So far 11,000 brick have been sent to Vernal by post and, until the conventional methods of transportation are provided, this method will continue to be used.

But the brick concern "delivered the goods"—which is the important thing for brick men to remember when confronted with difficulties.

AMONG *the* POTTERIES

With every semi-porcelain and vitreous china pottery west of the Allegheny mountains "loaded to the guards" with orders, both buyers and manufacturers have started to look at one another and ask: "What about 1917?" Never in the history of the domestic pottery industry has the condition of business been so brisk and overcrowded with orders as is now the case. It has followed in past years that, at this season, there has been a slight falling off in orders, and holiday business about cleaned up. Such, however, is not the condition this season. It has been pointed out that many a holiday order will never leave the factory, and that the buyers who tried to get late delivery, altho holding off in placing their specifications, will not be able to get a single plate. These buyers are being politely told that they were urged to have their holiday orders in the potteries by September 1st, or they would not be able to secure deliveries. It was not a case of the manufacturers endeavoring to secure a lot of business; it was a general policy adopted by the trade to warn customers in advance just what might be expected should delay arise in placing orders for holiday requirements.

It is true that many orders would have been shipped long ago had the pottery employes kept at work, but they did not. In all potteries, production has been far below normal thruout the year. Manufacturers could do nothing to keep the benches filled. In fact, the workers, in many instances, came and went as they pleased, and all the manufacturer could do was to "grin and bear it." Many pottery workers left the trade to accept other employment—principally in steel mills adjoining the pottery towns. They were attracted by a higher wage. Unauthorized strikes occurred with considerable frequency. It has been conditions like these that have hampered and caused a remarkable decrease in production. Even now, since the manufacturers have advanced the wages of all workers, there has been no material increase in production. Many potteries in the western district are not producing more than from fifty to sixty per cent. of their possible capacity. It has been pointed out that, with decreased production, it is impossible for the manufacturers to keep up with orders when the latter are the heaviest in the history of the trade.

INCREASE GRANTED VITREOUS CHINA OPERATIVES

Vitreous china manufacturers and representatives of the National Brotherhood of Operative Potters, together with representatives of the executive committee of the United States Potters' Association, met at East Liverpool, Ohio, recently, and decided upon an advance in wages to workers in such potteries. The manufacturers were represented by Mr. Curry of the Shenango China Company, New Castle, Pa.; Messrs. Herford and Pope of the Mayer China Company, Beaver Falls, Pa.; F. G. Mellor of the Warwick China Company, Wheeling, W. Va., and Fred Sutterlin of the Maddock China Company, Trenton, N. J. The conference was in charge of W. Edward Wells of the Homer Laughlin China Company, East Liverpool, Ohio, and chairman of the labor committee representing the manufacturers. First vice-president Frank H. Hutchins of Trenton, N. J., represented the workers from the Trenton district, while Edward Menge, president of the workers' association, represented the western china employes.

POTTERY ASKS INJUNCTION AGAINST RAILROAD

The Wellsville (Ohio) China Company recently started legal action against the Pennsylvania Railroad Company, asking that the court restrain the latter from confiscating and using two carloads of coal which have been shipped over its lines to the plaintiff, and which have not been delivered to him. The plaintiff states that, unless restrained from so doing, the defendant company will appropriate the coal for its own use as it is in need of fuel. The petition alleges that on October 20th a carload of coal was delivered at Rush Run by the Bench Flat Company, to be delivered to the plaintiff at Wellsville and, unless it is delivered, the plaintiff will be damaged, as it would be impossible to operate its pottery and ware now in the process of being made would be ruined. The court was asked to compel the defendant company to see that the coal is shipped to the plaintiff at once. A restraining order was issued which will compel the defendants to turn over the coal to the consignee.

DOMESTIC POTTERY DISPLACING FOREIGN MAKES

Pottery manufacturers are more and more taking the place in the domestic market formerly held by the foreigner and which the Japanese are even now striving to hold by themselves. Domestic art pieces and novelties are constantly coming into the market, some of them so well made as to attract more than passing attention. A few of the novelties are particularly attractive, while flower bowls and a host of other things are finding ready sale. One five and ten cent store has made a "ten-strike" with an earthenware flower bowl for the center of the table, charging ten cents for the bowl and ten cents for the piece into which the flowers are placed. It thus gets twenty cents for a most attractive novelty, and the manufacturer makes a reasonable profit. Some manufacturers predict that they will be able to hold this trade when competition is restored because they are learning more with each additional kiln they turn out.

EARTHENWARE PLANTS CROWDED WITH ORDERS

In spite of the troubles which every now and then appear in the East Liverpool (Ohio) district, there is no particular change in the earthenware situation. Orders continue to come from all parts of the country, indicating widespread prosperity and the plentifulness of money. The other side of the trade situation is found in the extraordinary efforts being made by factories to fill orders, and fill them promptly. Every day one can hear stories of new plans by buyers to secure prompt delivery, but the potters generally are following their old rule of doing justice to everybody, namely, first come, first served. Indications are that business will continue as brisk for the remainder of the year as it was the fore part, and there are many who believe that not until peace has been declared in Europe and the regular channels of trade are again open, need they fear danger from foreign competition.

ELECTRICAL PORCELAIN PLANT EXPANDING

Altho its plant now turns out more than 130,000 pieces of porcelain for electrical purposes every day, the Brunt Tile and Porcelain Company of Columbus, Ohio, reports that bricklayers are busy erecting a new kiln which will increase its capacity. Each piece of porcelain leaves the plant with the name Brunt plainly stamped upon it, and the company says that this name has been known for more than twenty-five years among the porcelain dealers of the country, as a mark of high quality. The company also manufactures floor tile, over three thousand square feet a day of this product being made and shipped to all parts of the United States. The company recently erected a new building embracing 10,000 square feet of floor space in which to store the vast quantities of raw material which it carries at all times to keep pace with its rapidly growing business.

FORMER SAGGERMAKER NOW A JUDGE

Samuel W. Crawford, for a number of years employed as a saggermaker in the East Liverpool (Ohio) district and at one time a local freight brakeman on the Cleveland and Pittsburgh Railroad, has just been elected Probate Judge of Columbiana county, in which East Liverpool is located. While hammering out saggers, Crawford studied law. He also studied human nature, and made his first fight for the office of mayor at East Liverpool. He was elected—and then succeeded himself. He was a candidate for sheriff, and was elected. As a candidate to succeed himself, he won out foi the second term. This fall he went after the probate judgeship, and he won it. He will take office January 1st.

INTERESTING NEWS FROM HERE AND THERE

Shortage and advanced cost of labor has given the Louisville (Ky.) Pottery Company the most trouble, according to K. P. Snyder. This has caused an advance in the price of the company's product which, at this normally dull time for that business, has helped to slow things up. However, with the prices on glass containers advanced during recent months, the demand for jugs has been immense and the Louisville Pottery Company has done a very large business in that commodity. Just now the concern is settling down to a steady winter's run in the expectation of a large volume of business in the early spring.

An item of much interest appeared in a recent issue of "The Anchor," a semi-monthly publication issued by the employes of the Thomas Maddock's Sons Pottery Company of Trenton, N. J. It recorded the results of a straw vote taken at the company's plant on the tariff question, stating that a total of forty-eight votes were cast in favor of the continuation of the present Underwood bill. While one hundred and forty-six expressed a preference for the old Payne-Aldrich form of tariff legislation.

Altho striking saggermakers in the East Liverpool, Wellsville and East Palestine (Ohio) and Chester and Newell (W. Va.) districts have returned to work, it has been impossible for the manufacturers to secure a sufficient advance supply of saggers to fire off kilns according to regular schedules. A sagger machine has been placed in operation in one sagger manufacturing plant, but it is not being worked successfully.

Pottery manufacturers of East Liverpool, Ohio, were recently notified by the local gas company to withhold the firing of additional kilns of pottery with gas until danger of a shortage due to cold weather would pass over. Thomas Stephens, manager of the company's office at that point, stated that as yet no shortage of the supply has been noticed, and it is hoped that new fields recently opened in West Virginia will prevent it, but that as a precautionary measure, the order to the potters was issued.

Rookwood pottery placques, bearing the name and insignia of the Baldwin Piano Company of Cincinnati, are being displayed at the new Louisville (Ky.) store of the last mentioned concern. On the day of the opening of the new store the company gave as souvenirs green Rookwood pottery ash trays, good enough for anybody's library table.

When the Knowles, Taylor and Knowles Pottery Company at East Liverpool, Ohio, occupies its new $25,000 office building on January 1st, the present offices will be turned into warehouse space and the former sample room will be used for the same purpose. This company has started the construction of a new battery of decorating kilns.

The French China Company at Sebring, Ohio, is building a new railroad switch in order that entrance to the packing sheds may be made easier and ware sent out more promptly. The company is also building a stock room, while an important addition to the decorating department has just been completed.

The increase in wages to this branch of the trade follows closely upon the heels of that granted the semi-porcelain pottery workers recently, and which becomes operative the first full pay after November 15th. The wage increase to the workers in the sanitary potteries became effective August 1st.

A new clay products concern to be known as the Sunset Potteries, Inc., has been incorporated at Reno, Nevada. The capital stock is $250,000, and shares are a dollar each. The incorporators are R. W. Fitzgerald, Jr., F. R. Gibson, G. W. Taylor, E. Cheney and J. S. Sinai.

Inability to get sufficient coal has caused the Crown Pottery Company, one of the large industries of Evansville, Ind., to operate on short time. The Uhl Pottery Company of Huntingburg, Ind., has been compelled to shut down because of the coal shortage.

The W. S. George Pottery Company at East Palestine, Ohio, is now using coal for fuel, both under its boilers and in the kilns. Gas companies are conserving their supply for private consumers.

* * *

Jersey's Contribution to Clay's 1915 Total

According to a statement issued recently by the New Jersey Department of Conservation and Development, the pottery production in that state during the past year was valued at $8,049,338. This is a decrease of $82,018 from 1915.

As in former years Mercer county led the state in this production, its output being valued at $6,632,730. The decrease in the state is shown in the Mercer county report, where a loss of $268,467 in production is shown. Mercer has thirty-four manufacturers at the present time.

A big gain in the production of pottery is shown in Middlesex county, where Perth Amboy and its large pottery plants are located. Middlesex was second in the state's production for the year, with only five producers, its business being valued at $732,791. This was a gain of $314,756 over the previous year.

Hunterdon county ranked third, with a production of $288,989, an increase of $61,421, and three producers. In the remainder of the state there were twelve producers, with an output for the year of $394,828, this being an increase of $10,272.

The pottery production in New Jersey represented more than one-half of the total for all clay producers for 1915. It is shown that New Jersey ranks second in the United States in the production of pottery—manufacturing 21.6 per cent. of the total. While Ohio stands first, with an output nearly double that of New Jersey, the latter state, however, ranks first in the production of sanitary ware, which represents more than one-half of the state's total production in pottery. New Jersey also stands first in china ware, producing more than forty-two per cent. of the output for the whole United States, and is third in porcelain electrical supplies and whiteware.

It is pointed out that the net decrease in 1915 is accounted for by a considerable falling off in sanitary, china and whiteware which was partly counterbalanced by an increase in porcelain electrical supplies and miscellaneous products. The net decrease of $82,018 is considerably less than the decrease in 1914, which was $707,189.

BRICK AND TILE FIGURES RECUPERATING

The New Jersey Conservation Department has also issued a report on the brick and tile industry in the state for 1916, which, according to the figures given, was worth $7,916,080. This is a decrease of $437,216 from the previous year. The year before, however, the decrease over 1913 was nearly six times as much, so that the showing for 1916 was not nearly as bad as it appears on its face.

The total value of the brick output in 1915 was $3,784,186, divided as follows: Common-brick, fifty producers, output, $2,099.65; fancy brick, four producers, output, $784,919; fire-brick, twelve producers, output, $899,613. There were also ten producers the value of whose product is not given. The brick industry shows a net increase of $100,938.

In the tile industry there were forty-six producers with the total output for the year valued at $4,131,894, a decrease of $538,154 when compared to 1914. The division of this branch of the industry was as follows: Drain-tile, eight producers, output $41,331; architectural terra cotta, six producers, output $1,430,968; fireproofing and hollow-tile, eleven producers, output $1,389,120; tile other than drain-tile, fifteen producers, output $275,378.

Middlesex county, which includes Perth Amboy and the Raritan river district, led the state, producing seventy-one per cent. of the total output. Its products were valued at $5,653,398. Mercer county was second, with $403,533; Monmouth county third with $380,563 and Camden county fourth, with $321,563.

New Jersey stands fourth in the United States in the the production of brick and tile.

MIDDLESEX COUNTY HAS RICHEST CLAY MINES

The statistics compiled by the department of conservation in conjunction with the United States Geological Survey show that in 1915 forty-five concerns in New Jersey produced 340,726 tons of raw clay, valued at $617,904. This is a net decrease in value of $30,680, or nearly five per cent. from the state's production in 1914. The production in 1914 as compared with 1913 was four times as great as the decrease in 1915.

These statistics do not include a much greater amount of clay of all grades dug by manufacturers, the value of which is included in the finished product.

Middlesex county has the richest clay mines in New Jersey, the report shows.

* * *

Fifteen Thousand Employers Unite to Oppose Class Legislation

An industrial board to protect American industrial interests against such legislation as the Adamson eight hour bill, to offset the power now wielded by organized labor in politics and in labor disputes, and to deal with the public problem of the employer, was founded at New York, N. Y., on November 15th, according to a recent despatch to the Chicago "Tribune."

The organization will be known as the national industrial conference board. It represents twelve of the largest industrial associations of the country. It will deal openly with state and national lawmakers, furnishing to them and to the public facts on proposed legislation and how it will affect industry. It will likewise act as public arbiter between employers and employes in disputes between capital and labor.

Announcement of the founding of the organization was made by Magnus W. Alexander of the General Electric Company at the opening session of the National Founders Association convention on November 15th.

OPPOSE CLASS LEGISLATION

Frederick P. Fish of Fish, Richardson, Herrick and Neave, Boston, will be chairman of the board, and Mr. Alexander manager. The board will hold its sessions whenever and wherever called upon to solve industrial problems. Its headquarters probably will be in New York.

The incentive for the establishing of such an industrial body was outlined by President William H. Barr of the National Founders' Association in his opening address:

"The lesson of the recent election is so very plain," he said, "that it seems to me in the future there will be less truckling to labor and more independence on the part of political parties, so that legislation will not be tainted by favoritism or political maneuvering for votes.

"The developments of the last year, politically and industrially, emphasize as never before the need of more comprehensive co-operative action in industry."

REPRESENTS $8,000,000,000 CAPITAL

Members of the Founders' Association estimated that the new conference board represented business enterprises which controlled about $8,000,000,000 invested in manufacturing plants thruout the United States and employed between seventy-five and eighty per cent. of the factory workers.

The industrial bodies which have joined the board are the National Founders' association, National Metal Trades association, National Council for Industrial Defense, National Association of Manufacturers, National Erectors' association, National Association of Cotton Manufacturers, American Cotton Manufacturers' association, National Association of Wool Manufacturers, Silk Association of America, United Typothetæ and Franklin Clubs of America, American Paper and Pulp association and the Rubber Club of America.

Membership in these organizations is said to number 15,000 employers giving work to approximately 7,000,000 persons.

* * *

The Human Factor in Industry

It has been recognized by most engineers and their employers that, in the past, one of the most important phases of the engineer's work has not been effectively handled in engineering education, largely because of the intangibility of the subject and the difficulty in teaching it. This phase is the human side of engineering.

In order to bring the matter prominently to the attention of engineering educators and engineers and to get something tangible upon which engineering teachers may build up courses of instruction on the human factor in industry, a great conference, called a "Congress of Human Engineering," was held at the Ohio State University, Columbus, October 26th, 27th and 28th. The College of Engineering and the Department of Economics and Sociology were dismissed and students required to attend the conference.

The program was designed to present the subject of the human factor in industry from all points of view, including that of the employer, operating superintendent, engineer, laborer, employment agent, welfare worker, economist and teacher. The big thing which the address was designed to emphasize, no matter what the point of view of the speaker, was that for the engineer to attain to his highest usefulness to himself, his employer, to the workmen and to society in general, it is necessary for him to be trained into a sympathetic knowledge of the psychology, needs, possibilities and weakness of the workers and how best to go about to help him to improve himself and his conditions.

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Pave the Yard

With winter fast approaching and with little, if any relief from the present labor situation in sight, it would not be a bad idea to give some attention to bettering a few of the most disagreeable conditions about the plant so as to make it a more comfortable and inviting place to work during the cold months. In some sections of the country, where it is necessary to perform most of the labor connected with the manufacture of clay wares out in the open, this time each year sees an annual exodus on the part of workmen to take jobs where they will be protected by four walls and a roof, with the atmosphere heated to a normal summer temperature.

In other words, the average clay plant workman, being entirely human, does not want to endure any more hardship than he is compelled to undergo and, therefore, like the birds in autumn, seeks a warmer climate, until the soft and balmy winds of spring make out-of-doors more attractive than the inside.

The kiln yard on many plants is usually just bare ground, unpaved and, in places, soft. Particularly around the kilns is this objectionable and a source of much loss, to say nothing of the discomfort to the human element in the work done at these points. When using round, downdraft kilns, the coal is dumped against the kiln every alternate furnace and most of us are familiar with the holes that soon appear as the fireman gradually digs in under the pile. The coal is mixed with dirt, causing clinkers and a poor fire; it is ground into the dirt and that around the edges is lost.

In wet, rainy weather the above mentioned holes fill up with water and a fair proportion seeps into the kiln.

It is a disagreeable job for the burner to work around the kilns in the black, dirty mud and, as the season progresses, with alternate snow storms and thaws, more mud than ever finds its way into the furnace with each scoop of coal.

In the late winter and early spring the yard is a "mess," cut up into mud holes by horse and cart, with the result that the men will become disgusted with having to wallow around in this mud like so many hogs.

Pave your yard with seconds, bats and culls, slushed with a cement grout. It will make for a more contented gang of workmen—they will not be as strongly tempted to yield to the call of a warm, indoor job, but will be more satisfied to retain their present employment—wheelbarrows will not be overturned so often, the yard will be dry at all times, if properly drained, coal is saved and a dozen other benefits result from the investment of a few dollars in labor and materials used for this purpose.

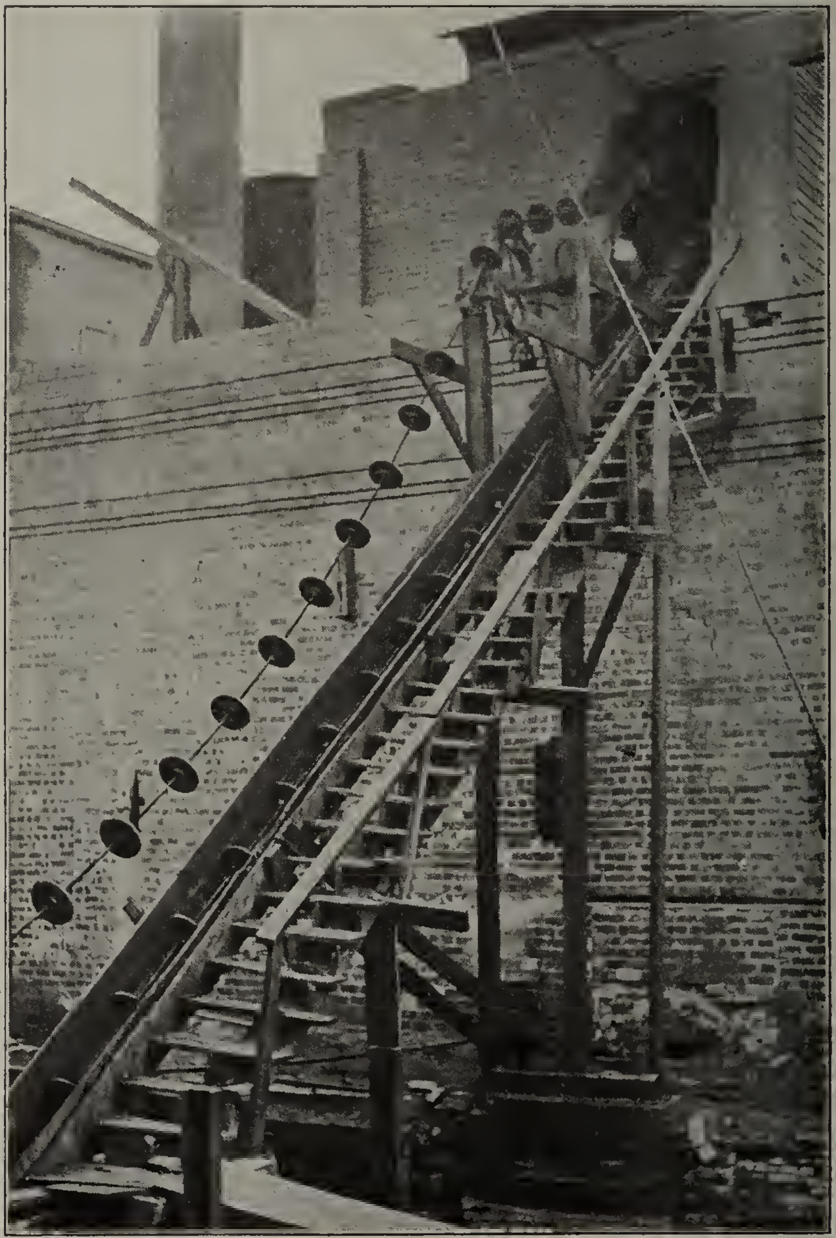
* * *

Idlers Save Power on Button-flight Conveyor

Moving twenty tons of coal an hour, requiring but four h. p. to operate and necessitating the attention of but one man, is the splendid record of the coal conveying system pictured in the accompanying photographs.

Essentially, the principles of this conveyor are much the same as those embodied in the ordinary type of button-cable or cable flight conveyor. One change that has been made from the original design, however, and which has done much to promote the efficiency of the system, is that of returning the cable over idlers. Ordinarily, the return stretch of a conveyor of this type is pulled thru a trough, a certain amount of power being required to overcome the friction created. By the above arrangement, a saving of this power has been realized and the trouble that might arise from the excessive slack, occasioned by returning the cable above the conveying portion, is entirely obviated, since the idlers have been found to take up this slack satisfactorily.

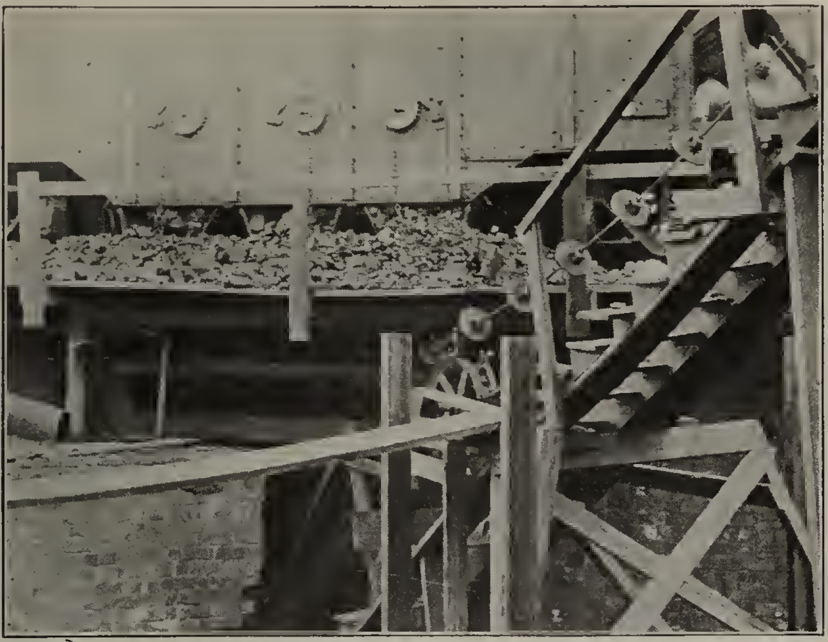
The buttons on the cable are ten inches in diameter and are spaced at equal distances on the cable—about two or three feet apart. The cable is seven-eighths inches in thickness and is operated in a trough made to fit the buttons. The elevating section of the conveyor is operated at an angle of almost sixty degrees—an incline so steep as to have made the practicability of this type of elevator for the pur-



Elevating Section of Button-flight Conveyor Making Steep Ascent. Note the Idler Over Which the Return Stretch of the Conveyor is Operated

pose intended a serious question prior to its installation.

The fact, however, that so little power is required to transport approximately one hundred and fifty tons of coal a day and that but one man is needed to attend to its operation, is sufficient proof of its economy and efficiency.



Hopper Into Which Coal Cars Dump Load, and from Which Conveyor Removes One Hundred and Fifty Tons a Day

The method of unloading the coal cars, which is clearly shown in one of the illustrations, is in itself very interesting and, without doubt, does much to make possible the attainments of the conveyor. The coal car is "spotted" directly over a receiving hopper into which it dumps its load. This hopper is, in turn, placed at the receiving end of the conveyor, which removes the coal at the rate above mentioned.

⁂

A Handy Kiln-lighter

A small article, made by an eastern fire-brick manufacturer from fire-clay, and marketed thru hardware dealers for domestic use as a stove or furnace lighter, offers great possibilities on the average clay plant as a kiln-lighter.

This device resembles somewhat the shape of an elongated orange or a miniature foot-ball, and has two grooves at right angles passing around its shortest and longest circumference, thru which wire steel wire can be laid and the ends fastened to an iron rod to be used as a handle for the device.

Being made of a mixture of fire-clay and another substance so that it is porous when burned, this article acts very much like a large wick when dipped into a pail of kerosene and then lighted. The clayworking concern mentioned above uses the article in question as a kiln-lighter, altho, as has been stated, it is manufactured primarily for domestic use, and has found it to be eminently successful in this connection.

For the lighting of scove kilns this device would be particularly useful, as it could be attached to a long iron rod, saturated with kerosene and thrust several feet under an arch, where it would burn for a long time.

⁂

Fuel Losses Due to Carbon Monoxide

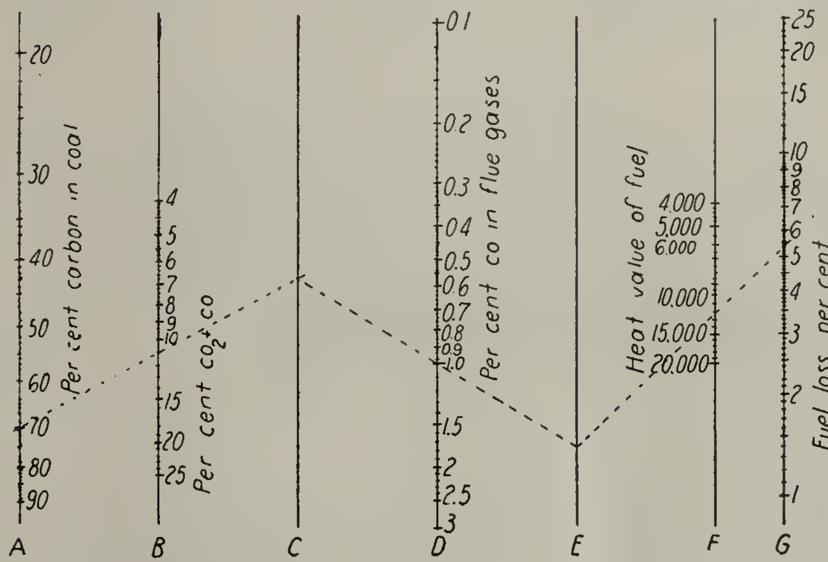
The accompanying chart is designed to give the fuel loss due to an excess of carbon monoxide in the flue gases. In determining the loss, figuring is entirely eliminated, it being only necessary to zig-zag a straight edge across the page three times, as indicated by the dotted lines. The result is determined when the column "G" is intersected.

As an example, take a coal that contains seventy per cent. of carbon, the flue gases of which contain ten per cent. carbon dioxide (CO_2) and one per cent. carbon monoxide (CO). The heat value of the coal is 12,000 B.t.u.'s per pound. In determining the fuel losses in this case, a line is run from column "A" at seventy, thru column "B" at eleven (the sum of the percentages of CO_2 and CO), and continued until it intersects the line "C." From the point of intersection, run the line thru the percentage of CO as shown in column "D," and strike a point on column "E." From this point draw the line thru the heat value of the coal as shown in column "F" which, in this case, amounts to 12,000 B.t.u.'s a pound, and the intersection with the column "G" gives the answer to the problem. Under the conditions outlined here, a fuel loss of 5.4 per cent. would be suffered. The method of using the chart is extremely simple for the line is carried directly across from left to right.

The range of the chart is wide enough to take care of nearly every condition of flue gases. Should the intersection with column "C" or "E" fall outside of the chart it is only necessary to extend the lines and proceed with the problem. A little study given to the chart and the solution of a few original problems will soon show that the percentage of CO should be as low as possible and that the CO_2 content should be as high as possible.

This statement becomes axiomatic after it is known that CO is a gas capable of burning and producing heat if it is kept to a kindling temperature in the presence of oxygen, and that CO_2 is a gas produced by perfect combustion. Therefore, in the flues and stack, the carbon monoxide (CO) should be low and the carbon dioxide (CO_2) high.

If it is desired to compute the percentage of fuel loss without using the chart, it may be done in this way: Divide the percentage of carbon in the coal by the percentage of CO_2 and CO; multiply by the percentage of CO; divide by the heat value of the coal per pound; and multiply by 10,150. The answer will be the same as that given in the chart, but it is harder to determine and takes a greater amount of time.—*N. G. Near.*



By the Use of This Chart, You Can Determine the Percentage of Your Fuel Loss Due to an Excess of Carbon Monoxide in the Flue Gases

⁂

It is proposed to install additional equipment at the plant of the California Brick Company of Decoto, Cal., which will increase its capacity from 40,000 to 60,000 brick a day. It is said that more than a half million dollars have already been invested in this factory.

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The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

CONFLICTING REPORTS are current regarding the prosperity of the burned clay industry as reflected in the activity of national building, but the large majority of opinions indicate a highly satisfactory situation existing for this time of the year. There can be no doubt, however, that building operations would be of much larger proportions were prices of both labor and material at a lower level. It is taken as a question in many instances as to whether or not this item is influencing a great many projects since the prospective builders are aware that there is little or no chance for an appreciable abatement in the high prices, but the consensus of opinion is that this element is having a decidedly retarding effect.

INDICATIONS POINT TO BANNER YEAR IN 1917

Doubtless, the projects that are now being held back are sure to develop in 1917, throwing over into that year a good portion of the tremendous prosperity that has been enjoyed during the twelvemonth that is now fast waning. Practically everyone interested in building is looking forward to excellent business during the coming year and can refer to a large number of jobs that have already been contracted for to develop after the cold weather has passed.

PRICE OF BRICK IN NEW YORK SOARS

Since November 1st, the north river wholesale brick market of New York City has seen a steady rise in the price of brick, which at the last of the month reached $9.00 and $9.25 a thousand, with indications pointing to another quarter being tacked on in the near future. In fact, the feeling is prevalent that the highwater mark of $10.00 for Hudson river commons is not far off. Raritan river brick is not being quoted in the open market as it is extremely hard to get, due to the difficulty in getting labor to load them on the barges at the yards. For New Jersey distribution the price is around $10 a thousand, loaded on cars. Newark, N. J., yard prices are quoted as high as $11.50 and $11.75 a thousand. Another condition that is tending to raise the price of brick in this center is the scarcity of barges used to transport the brick from the yards. Barge owners have found it more profitable to rent out their barges during the winter than keep them in service carrying the shipments of brick.

MANHATTAN PLAN FILINGS TAKE BIG JUMP

Plan filings and alterations in Manhattan for the week ending November 25th, totaled $1,174,850 as against a sum of $418,435 during the corresponding period in 1915. The total for new buildings in Manhattan since January 1st is $109,018,295 as compared with $56,880,888 in 1915, while the alterations during this time amount to $17,771,276—a gain of almost $5,000,000 over those made during the same period in 1915. Figures from Brooklyn indicate an appreciable increase in the value of plan filings made during the week ending November 24th, and the borough of Queens more than doubled the value of its filings made last year during the same week of this year, while the figures for the entire year for the building activity in this section are almost $19,000,000 ahead of those for 1915.

OTHER EASTERN POINTS ENJOY ACTIVITY

Philadelphia reports the general outlook in building to be favorable so far as the amount of work in sight is concerned, but that the price of materials has advanced to such an extent that but a small margin of profit is being realized. In Reading, Pa., similar semi-favorable conditions prevail, the weather being mild and encouraging building work. Baltimore, Md., is also enjoying activity in building that is well in advance of that of last year.

CINCINNATI SATISFIED WITH NOVEMBER BUILDING

Cincinnati brick dealers report a falling off in the demand for brick, caused largely by bad weather, as well as by the advance in season and the natural decline in the amount of new work begun. Many of the local plants have closed down for the winter. The amount of building undertaken during the latter part of the season, for which material contracts have been closed and the brick delivered, has been unusually good and the brick industry as a whole is well satisfied. Prospects for the coming year are also very good and many manufacturers are already planning additions to their plants to take care of the increasing business they feel is on the way. There is an abundance of money available in Cincinnati for building purposes and it is felt that this will stimulate the activity of the coming year. Columbus, Ohio, looks forward to a great amount of new building to come as the result of the passage of bond issues at the recent election which placed more money within the reach of contractors, builders, architects, and others interested in constructional work.

WEATHER FAVORS BUILDING IN LOUISVILLE

Open and mild weather has favored the building interests in Louisville, Ky., and dealers of this market has been enjoying an extension of their usual busy season. According to many manufacturers and dealers, the past month closed as one of the best Novembers in years, orders being carried over by many that assure an active business during December.

Chicago has also been favored with good weather conditions that have permitted an unusually large amount of building to be done. Building permits issued in Davenport, Iowa, during the month of November doubled in value those issued during the same month in 1916.

PACIFIC COAST MAKES UP FOR LOST TIME

Fair weather has encouraged late building operations on the Pacific coast, pushing the building period far over the date at which operations usually experience a general tightening, and it is safe to say that all delays occasioned by the dock strike some months ago have been more than made up. The industrial situation is most promising, plans for the construction of large enterprises that will entail the use of considerable burned clay materials being under consideration. At present, there is not much new work of importance being started but in the country districts a large amount of building is going on. While much of this is in timber, yet the percentage of brick used is rapidly increasing. The common-brick market in San Francisco is still strong, but the deliveries are not as heavy as last month. All the yards which can operate thruout the winter will do so and there will be a general preparation for what is expected to be a big building activity next spring and summer.

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are the most economical means of joining all power transmitting belting. Once applied, they never again need attention.
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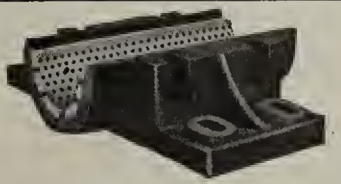

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Replace your plain babbitted bearings as quickly as possible with this combination graphite-babbitt sheet lubricator. It saves 75-90% oil. Saves belts. Write for information and trial order plan.
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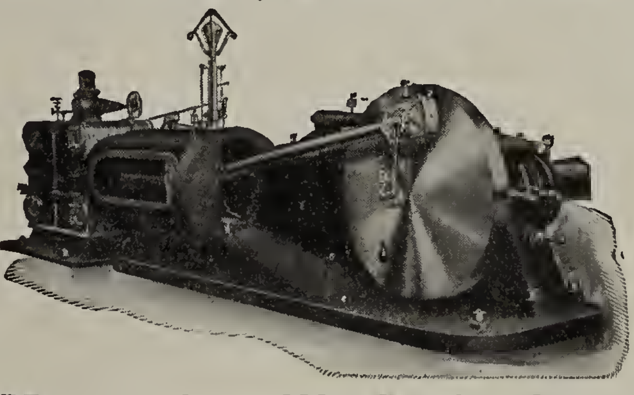

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THE BUCKEYE ROLLING MILL COMPANY
Exclusively Manufacturers of First Quality Light Steel Rails and Accessories
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All Sections from 12 lb. to 40 lb. per yard
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Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

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for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

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Great mechanical stability, and accessibility are two important features of the improved Smith Type Hill Clutch. Vise-like jaws grip the ring in pairs. No springs are used. Clutch is self centering.

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That's the kind you get when you order the

YOUNGSTOWN

Made of the best steel right in the heart of the steel district, and also where there is constant contact with some of the best clay plants in the world.

Let us figure on your requirements.

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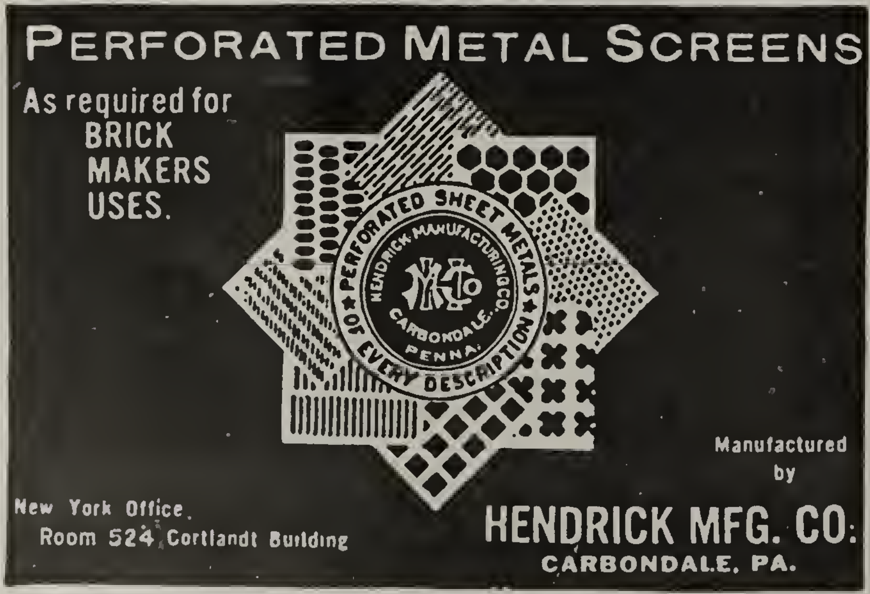
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IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Richard Balmert, formerly a chemist in the employ of the New Jersey Terra Cotta Company at Perth Amboy, has accepted a position with a Baltimore, Md., terra cotta plant.

Friends of George Hendricks, manager of the Fairview Brick Company of Denver, Colo., were grieved to learn of the death of his son, George E. Hendricks, on November 22nd.

George S. Rundlett, who for many years conducted a large brickmaking establishment at Epping, N. H., died recently at the Masonic Home at Manchester, N. H., and was buried at Epping.

W. H. Gifford, manager of the brick department of the Wisconsin Lime and Cement Company, Chicago, Ill., the agent for the Hocking Valley Products Company of Columbus, was a visitor at the Columbus office of the last-mentioned concern recently.

V. H. Gerhardstein, formerly associated with the Bloomville (Ohio) Brick and Tile Company, recently severed his connection with that firm and has accepted the position of general manager of the West Concord (Minn.) Brick and Tile Company.

Charles H. Frank, salesmanager for the Nelsonville Brick Company and a member of the Elks' chorus, attended the dedication of the new Elks' home at Dayton on November 28th. He was one of a party of four hundred who went from the Buckeye capital.

W. Guy Weaver, superintendent of the Perth Amboy plant of the National Fireproofing Company, is recovering from serious illness contracted during the recent political campaign. Mr. Weaver was the democratic candidate for mayor of Perth Amboy, but was defeated.

Robert A. Doan, formerly president of the Nelsonville Brick Company, which concern figured in a merger of paving-brick plants in the Hocking Valley recently, is preparing for a two years' trip abroad. He expects to leave soon after the first of the year and will make an extensive tour of the Orient, the Philippines and parts of Africa.

At a recent meeting of the South Bend (Ore.) Commercial Club, a number of representatives of infant industries were present and among these was George Bale of the Twin City Brick and Tile Company. Mr. Bale gave an interesting talk on how his company was organized and the product exploited.

G. C. Mars, advertising manager of the Hydraulic-Press Brick Company, St. Louis, Mo., recently addressed the Junior Advertising Club of that city on the subject of "How to Sell Brick," at one of their weekly dinners. Fifty-six members of the association were present to hear Mr. Mars' talk.

Herbert C. Enck of Dover, Ohio, for ten years superintendent of the Crown Brick Company's plant at Dover, has resigned from that position and has been succeeded by

G. A. Polen, who has been associated with the company as general superintendent of a number of its plants for a few years. Mr. Enck has not as yet announced what work he intends to follow in the future.

William M. Sargent, general manager of the Wisconsin Pressed Brick Company, with offices in Minneapolis, Minn., died at his home, 1520 Hawthorn avenue, on November 9th. Mr. Sargent was well known in the brickmaking circle of the Northwest and his continued activity in connection with the Wisconsin company since 1895 has built up a host of friends that mourn his loss.

The funeral of James F. Cullen, formerly a prominent brick-manufacturer of Cleveland, Ohio, who died of heart disease on November 16th, at his home, 5126 Broadway S. E., was held on Monday, November 20th. Mr. Cullen was president of the Cullen Brick Company of Cleveland, and was the son of Peter Cullen, who is credited with being the first brick manufacturer in Cleveland.

Bert J. Graham, vice-president and general manager of the Denison Interlocking Tile Corporation, Cleveland, has departed for the Pacific Coast, where he will stay until the first of the year. During his trip, Mr. Graham will visit the North Dakota, Montana, Washington, Oregon, Central and Southern California, Texas and Missouri plants of the Denison interests.

L. Perry West of Washington, D. C., representing the National Brick Manufacturers Association, and F. W. Walker, of Beaver Falls, Pa., representing the Tile Manufacturers Credit Association, attended the special meeting recently held here of the National Council of the Chamber of Commerce of the United States to discuss the railroad situation in its many phases as it affects all kinds of manufacturers.

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, will address the meeting of the American Association of State Highway Commissioners at St. Louis on December 6th. This is the second gathering of this body, and it will extend from December 5th to 7th. A special invitation has been given Mr. Blair by the highway commissioners. On December 7th Mr. Blair also will speak at the dedication of the University of Illinois new ceramics building, Urbana, Ill., on the subject of brick paving.

M. J. Uline has been appointed traffic manager of the Barkwill-Farr Company, Cleveland, Ohio. One of his first moves was to take over the entire sales force of the company, and turn it into a service bureau. During the time he will be instructing the sales staff, he hopes to develop certain points that will make it easier for the men to obtain the business which means they will be able to do more business. Mr. Uline formerly was division superintendent for the City Ice Delivery Company, and for twelve years prior to that was general manager of the Colonial Ice Company.

California

J. H. McKnight, an expert furnace-brick maker of Los Angeles, Cal., has been making some investigations in Bakersfield with a view toward establishing a plant for making fire-brick used in lining smelting furnaces.

At the Kern County Fair, held a few weeks ago, the Bakersfield (Cal.) Sandstone Brick and Tile Company had an exceptionally fine clay products exhibit, showing the various materials manufactured by the concern and with specimens indicating each step in the process.

"The Tanks with a Reputation"
Hoop Lugs made by CALDWELL
will never slip or give way. They are the only "positive grip" lugs on the market. This lug does not depend on friction to hold it, as other lugs do.
Our catalogue of Tanks and Hoop Lugs, contains illustrations giving full details. Let us send you a copy and make you prices.
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Tanks (*Steel Wood*) Towers (*Galvanized*)
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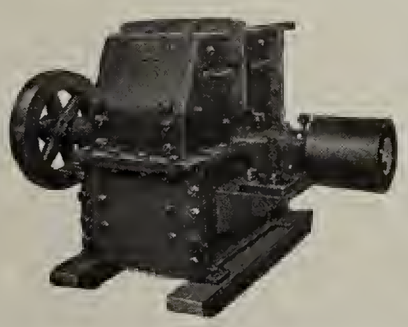

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Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.
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PREVENTS HEAT PENETRATION
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MADE FROM CELITE
INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder. Has 10 to 12 times the heat insulating value of firebrick.
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Dies for Clay Working, our Specialty. Brick, Fireproofing, Plain and Ornamental Hollow Ware Dies, for Auger or Steam Press; Piano Wire Clay and Sand Screens, Conveyors, Elevators, Dry Pan and Pug Mill Automatic Clay Feeders, Friction Winding Drums.
The Louisville Machine Company
Louisville, Ohio
Patentees of *The Roller Process Paving Block System*

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

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SERO SPECIALTY CO. "SERO" BELT DRESSING CLEVELAND, OHIO

THE METROPOLITAN PAVING BRICK CO.

SAY Replying to your inquiry of Oct 30th, relative to "SERO" belt dressing, please be advised that we are using this dressing on four plants with entire satisfaction.

Yours very truly,
(Signed) O. W. Renkert
Vice-Pres. Gen'l Supt.

Our Guarantee—
We furnish one 50 lb. can subject to your approval, to be returned at our expense if not satisfactory.

SERO SPECIALTY CO., CLEVELAND, O.
We also make "Sero" Gear and Cable coating and Manilla Rope dressing

Industrial Track Equipment

Everything in switches, crossings, frogs, switch stands, rail braces, tie plates—ready to be shipped promptly on receipt of your order.

Ask us for quotations on your industrial railway needs.

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Drier Doors That Hold the Heat

No matter what type drier you have, you need to equip it with the

Perfected Dry Kiln Door Carrier

Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

"Carrier" with One Door Lifted.

Dry Kiln Door Carrier Co.
Indianapolis, Indiana

One of the busiest brick concerns in the vicinity of San Francisco is the California Brick Company, whose plant is at Decoto, Cal. This company makes a high-grade vitrified paving-brick which is being used extensively in the San Francisco Bay region. The company has orders for more brick than it can supply at present.

The Union Brick and Tile Company, whose new plant near Modesto, Cal., has been completed, started operating the first part of the present month under most favorable auspices. The plant was financed by local capital and is efficient in every respect. To insure continuous operation, a dual heating and power plant has been installed. W. M. Anderson is the superintendent of the works.

The Los Angeles Pressed Brick Company, whose No. 4 plant has been completed at Alberhill, near Elsinore, Cal., is planning to erect a model settlement for the workers near the factory. Attractive little bungalows of hollow-tile construction are being planned. Fifty men are now employed at the plant, but fully three hundred are expected to be needed by next summer.

Gladding, McBean and Company, San Francisco, Cal., is operating full force this month. The concern is especially busy in the terra cotta department as work on the Southern Pacific building contract is under way. Some very high-class terra cotta features will be embodied in the decorative scheme of this mammoth structure on Market street, of the above city.

Charles B. Stetson, a well-known San Francisco wholesale merchant, heads the directorate of the Magnesite Refractories Company, articles of incorporation for which have been filed at Porterville, Cal. The company is capitalized at $200,000, all paid in, and will start work soon on the construction of a plant. J. L. Mitchell and F. J. Schuhl of Porterville are also directors in the new corporation. The concern will work the George W. Stewart properties.

The Blythe (Cal.) Freighting and Lumber Company has taken over the Solano brick yard, west of town, and expert brickmakers have started work on the first kiln of 100,000 which will be ready for building purposes in a few weeks. Charles Utting is manager of the company and he says that several hundred thousand brick will be burned this winter. H. Lyter, an experienced brick man from the Simmonds Brick Company of Los Angeles, is in charge of the factory end of the business.

H. T. Epperson, San Francisco, has been seeking to develop a clay deposit, said to be valuable, which he has discovered at Forest Knolls near San Rafael, Cal. Several prominent parties are making a careful study of the proposition, among these being E. T. Bell of San Francisco. The plan is to organize a company and start an art pottery plant on a fairly large scale. Specimen pottery made of the clay is certainly very beautiful. It is proposed to call the product "Redwood Art Pottery."

The San Jose Brick Company, one of the largest and oldest brick plants in central California, has just been bought by Mr. Tupper of the Western Lime and Cement Company, whose San Francisco offices are in the Postal Telegraph building. The San Jose plant has a capacity of over fifteen million brick annually and was owned by Mrs. Doherty, who inherited it from her husband. For the past three years Mr. Tupper has managed the works and had the selling agency. The business will accordingly be carried on with no material change in policy.

W. W. Dennis of the McNear Brick Agency, San Francisco, reports the common-brick market as being firm and steady. The McNear plant will operate all winter. Being equipped with immense drying sheds, it can make brick thruout the entire year. The company has operated to full capacity this season. Mr. Dennis states that the volume of brick business in the vicinity of San Francisco this year has been over ten millions greater than last year. He expects to see a much greater increase next season. A number of large contracts are being figured, but no announcements concerning same are ready for publication.

Georgia

The Flint River Brick Company of Albany, Ga., is operating to capacity, the demand for several months past having been so heavy that the entire output of the company has been rapidly consumed. This concern supplies brick to three southern states, Georgia, Florida and Alabama, but enjoys the greatest amount of business in southwest Georgia. It has a daily capacity of 60,000. P. J. Brown is president of the company and C. M. Shackelford is vice-president.

The plant of Stephens Brothers and Company, fire-brick and pottery manufacturers of Stephens Pottery, Ga., which was swept by a fire last June that caused a loss of $45,000, is being completely overhauled and rebuilt, fire-brick machinery having just been installed that will give the plant a capacity of 35,000 brick a day. Pottery manufacturing equipment is also to be installed in the near future. When the new plant is completed it will be one of the most modern of its kind in the South.

Idaho

"Our plant has the distinction of never having stopped operation, winter or summer, since we began two years ago," said John Johnson, president of the Idaho Fire Brick Company of Troy, recently. The company employs a crew of twenty men and has sufficient orders on hand to keep them busy all winter. The railroads and power companies are the concerns best patrons.

A new brick manufacturing plant is to be built at Burley, Idaho, by the Heyburn (Idaho) Brick and Tile Company, according to reports recently received. Work has already begun clearing the ground for the plant, which is expected to be in operation by early spring and which will manufacture a red brick. The Heyburn plant operated by the company has enjoyed so large a volume of business during the past year that it has become necessary to expand. H. G. Pullman is president of the Heyburn Brick and Tile Company, V. T. Pullman, treasurer, and Lee St. Clair, secretary and general manager.

Illinois

Ten carloads of face-brick are being shipped from the plant of the Decatur (Ill.) Brick Manufacturing Company to Winnipeg, Canada. The freight charges on the brick amount to $12.70 a thousand.

The Ceramic Tile Company is the name of a newly incorporated concern of Chicago, Ill., organized with a capital stock of $2,500 by D. B. Boyden, W. E. Coulter and Clyde C. Colwell.

Many improvements are being made on the plant of the Richards Brick Company, Edwardsville, Ill., according to Ben H. Richards, Jr. An extension of the large continuous kiln is now under construction that will increase the capacity of the plant twenty per cent. The kiln now has twenty chambers and four more are to be added. A new loading platform

Boss Ten Hour DRYER
The only tender clay dryer on the market

Boss System of BURNING BRICK
Will easily cut your present fuel bill half in two

COMMON SENSE APPLIED TO
Drying ORIGINAL Boss SYSTEM. **Burning**
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All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

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You **can't** get the best results from your blasting unless you use a

CYCLONE DRILL

If you will write us for Bulletin B 4, we will tell you how the Cyclone Drill has paid for itself in a few months' use.

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WE CAN SAVE you 25% of your fuel bill. No money until we do it. Don't you think this worth a stamp? Then write to the

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The New Sewer Pipe Truck

Differently designed—built better than ordinary—with the same care, the same skill, and of the same excellent materials of which we have long designed and built Toronto Machinery, from Sewer Pipe Presses to Dry Pans and Wheelbarrows.

This Pipe Truck is built in 3 different sizes. No. 1 handles 18", 20" and 24" pipe. No. 2 handles 27", 30" and No. 3 handles 33" to 36" pipe.

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It will save from 1 to 3 men according to size of pipe

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376 North Clark Street CHICAGO, ILL.

three hundred feet long will be constructed at the plant in the near future.

The Purington Paving Brick Company of Galesburg, Ill., one of the largest paving-brick manufacturing companies in the United States, has recently started the manufacture of wire cut lug paving-brick. The Purington company manufactures 350,000 paving-brick daily. F. G. Matteson is president and treasurer of the company; George C. Prussing, vice-president; C. B. D. Howell, vice-president; W. H. Terwilliger, secretary; and W. G. D. Orr, general manager.

Iowa

In a letter of commendation from W. W. Lewis, manager of the Batavia (Iowa) Brick and Tile Company, who has been a subscriber to "Brick and Clay Record" ever since it has been published, we are told that his company has enjoyed a very good business during the past season, sales having run high and collections exceptionally good.

A new era of progress and prosperity has been opened to the Oskaloosa (Ia.) Vitrified Brick Company as the result of the extensive improvements made on the company's plant during the past year, chief among these being the installation of a producer-gas system of burning. The remarkable increase in kiln turn-over made possible by the new method of burning is strongly reflected in the work that has already been done in the past five months of this year in which the plant has been operating, when compared to the production attained during the nine months of activity last year. It has also been noted that production costs have been appreciably lowered, repairs minimized and a higher class of ware made possible. The company is now manufacturing paving-brick, face-brick, hollow-tile and drain-tile.

Kansas

The Buffalo (Kas.) Brick Company is now working to capacity after a shut down of about three months. During this period new kilns, new machinery, and buildings were added and a change from oil to coal for burning the kilns was made, a producer-gas system of burning having been installed. The reconstruction was made at a cost of about forty thousand dollars and makes the plant a model of its kind.

Kentucky

The Louisville and Nashville Railroad is building a brick switch tower at Winchester, Ky., to house the apparatus for manipulating the switches connecting the main line and the Winchester-Irvine line. The tower is now under construction and is to stand two stories high, measuring 16x32 feet. George Deiterman of Paris, Ky., has the contract.

J. H. Bell, salesmanager for the Louisville (Ky.) Fire Brick Company, reports that the company is continuing to book orders for delivery as soon as possible. In spite of strenuous efforts, however, business is piling up faster than can be handled and the company is as much as three months booked ahead of deliveries. Everything points, Mr. Bell said, to a continuation of business on the present scale for at least another year.

A four-inch brick veneered wall failed to meet the requirements of the building code of the city of Paris, Ky., when C. C. Clarke and others asked for permission to follow that plan in construction of a tobacco warehouse recently. A special meeting of the council was called to consider the application and it was disposed of when the promoters of the warehouse agreed to the city's demand that the wall be of nine-inch brick construction. This, it is said, will bring the cost of the structure to $15,000.

James T. Howington, general manager of the Coral Ridge Clay Products Company, Louisville, Ky., states that the demand for hollow-tile is growing and that the company is shipping as fast as the product can be produced and the proper kind of cars can be obtained for shipment. The Louisville and Nashville embargo is affecting shipments and, in order to get into territory north of the lines of that company, it is necessary to load into foreign cars. The Coral Ridge Company has several good contracts in Indiana and elsewhere in the north and is shipping steadily.

At Ashland, Ky., John Peters, general manager of the Petersburg Fire Brick and Tile Company, has announced that his company will shortly begin the erection of two large brick kilns at its plant in Coal Grove, and that other improvements which will enlarge the output of the factory will be made as soon as possible. Mr. Peters stated that he has just closed an order for 700,000 brick for shipment to Chicago and that orders are now being booked to run into 1918. According to the plans of the company, the capacity is to be doubled, if not tripled, by the installation of new equipment.

Architects and building contractors of Louisville are receiving notices from the office of W. J. O'Sullivan, city building inspector, and Deputy State Fire Marshal S. C. Elliott, calling their attention to the new state regulations as to the construction of garages. The city ordinance, which is liberal as to garages outside of the fire zone, and the state law are given in part and the recipients of the notices asked to take note of the fact that the state law, which supersedes the city ordinance, is more stringent than the city regulations. All garages must be either of fireproof construction or constructed of slow-burning materials, such as of wood enclosed with metal, under the state regulations. This is distinctly favorable to brick and hollow-tile.

A verdict by which the Hydraulic-Press Brick Company recovered a judgment for $5,179.40, due for face-brick furnished for the Louisville City Hospital, has been reversed by the Court of Appeals of Kentucky, which stated that the commission of the city that built the hospital could be sued, the first verdict having been against A. Bentley and Sons, contractors for the job. The element of penalties for delay enter the case. The brick company contracted with the commission for the brick, the commission later turning the contract over to the contractor, who had put in a counter-claim for damages for delay in deliveries of the brick. This counter-claim had been dismissed by the trial court but the Court of Appeals holds that it must be tried on its merits, and that the responsibility of the commission shall be considered.

Brickmakers of Paducah, Ky., are gratified over new freight tariffs that will mean a saving to them of from one hundred to two hundred per cent. in shipments made to southern territory, and which will become effective on December 15th. The large reduction in rates enables the Paducah manufacturers to compete with all others in the interior Mississippi valley territory and means the opening up of an entirely new market to them, making possible a large expansion in their business. An example of the heavy reduction in the rates is to be seen in the decrease from the present rate of seven cents from Paducah to Union City, Tenn., to two and one-half cents in the new schedule. Other reductions are, in many cases, in the same proportion.

Three weeks were spent by Commissioner Charles C. McChord of the Interstate Commerce Commission in the in-

YOU can't raise steam from cold water—you've got to heat it first. You can't make good bricks from clay as it runs in the bank—you've got to get it *thoroughly mixed.*

A Shovel that digs without mixing, leaves part of its work undone. One of the things that owners appreciate so greatly about our Shovels is the fact that

"Marions" Mix the Clay as They Dig

—making your work in the grinding room much more simple, and producing a more uniform run of brick. "Marions" also enable you to handle very hard material without blasting.

Particulars? Our special Brick-Makers' Catalog A120 is full of them—get *yours*, without obligation, by writing today.

Marion

We Make Excavating Machinery of Every Description

Branches:
Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY
Established 1884
MARION, OHIO
120

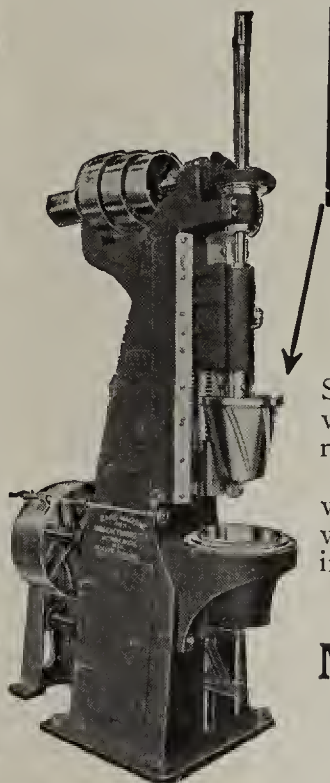
Why Don't You Make Flower Pots

It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the

Baird

Flower Pot Machine



Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.

"If the Price Pyrometers had not done any more than show us how to burn each kiln to get the perfect burn at lowest cost—they would have paid for themselves many times over."

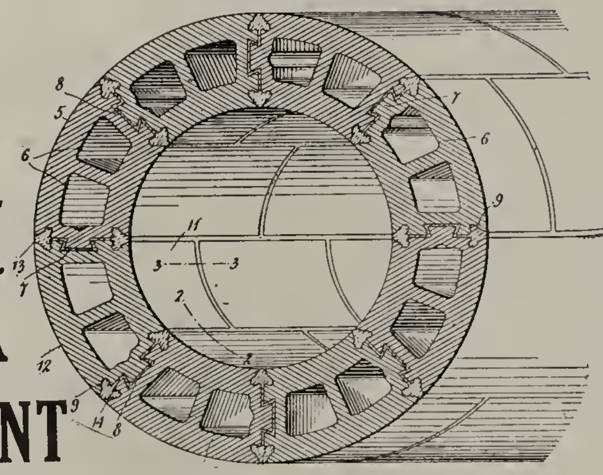
That's what the superintendent of one of the largest clay products plants of its kind said, recently when asked his advice as to the practical good of

Price Pyrometers

He said much more than this, too, and every word was praise—enthusiasm—he could not say too much. We will gladly send you his name and the names of others, and you can write direct and find out for yourself whether Price Pyrometers will pay you. We invite investigation and comparison.

We will show you how to conserve fuel—how to get a better product—the same as we have done for others.

The Price Electric Co.
12367 Euclid Avenue
CLEVELAND, OHIO



AJAX SEGMENT SEWER BLOCK (Patented)

These blocks are so designed that the mortar is filled in the joints after the sewer is all laid and settlement has taken place. In all other designs the mortar is placed between the joints when the block is laid, and later when settlement takes place these joints are cracked and ruptured making leaks probable.

A positive means of locking and sealing the joints, as shown in the cut, is a superior point embodied in the Ajax.

These two points of merit provide wonderful arguments for your salesmen and in the majority of cases it clinches the sale for you.

Better write us now for territorial rights.

Southern Pipe and Culvert Co.
MACON, GA.

quiry at Louisville into the car shortage situation. Much information of value to future regulation of the car supply distribution was obtained and several orders given which tended to relieve the shortage situation, especially as to the supply of coal. These included instructions to all railroads to at once return the foreign coal cars on their lines to the roads owning them. At the conclusion of the session the Louisville and Nashville railroad was ordered to lift its embargo on traffic north from its lines and it was announced that a permanent commission had been selected which would sit at Washington and work in connection with the Interstate Commerce Commission in regulating hereafter the distribution of the car supply.

Artisans are now engaged in placing the Rookwood tile wainscoting in the offices of the new Leader building at Lexington, Ky., the structure which is to house the city's afternoon paper. The tile are of soft gray and green unglazed, set in an attractive pattern of rich coloring, the design having been worked out especially for the building. It is interesting to note that the clay from which the tile were burned, was mined from the banks of the Paducah Clay Products Company, located about eight miles from Paducah. This company is composed largely of Lexington men, Dr. J. W. Pryor being president; A. Trailot, vice-president, and Henry Wilson, secretary and treasurer. Other Lexington men interested are J. D. Yarrington, Arthur Hodges, Thomas L. Walker and Henry Duncan. They are watching the progress of the job with more than usual interest and are planning to use the finished work as a demonstration of what their clay is capable of producing.

The Olive Hill (Ky.) plant of the General Refractories Company, New York, was destroyed by a fire which broke out from an undetermined source on November 16th. The loss was reported in the published accounts of the fire at $100,000, altho the official returns were considerably less. Insurance of $54,400 was carried and total loss claims were paid by the insurance companies concerned. This was one of the oldest of the General Refractories Company's plants, the company having another at Hitchens, Ky., where as much as possible of the business assigned to the Olive Hill factory will be taken care of. As a matter of fact, however, both plants were behind on orders and the company will be severely handicapped in filling orders by loss of the Olive Hill plant. It will rebuild, according to information in Louisville, tho it is reported that another point will be selected for location of the new plant, which, it is understood, is to be constructed on a much larger scale. Three hundred men were employed at the plant destroyed, at which fire-brick were made.

Surety companies on the bond of contractors to guarantee faithful performance in the erection of buildings are legally responsible to mechanics and material-men contracted with as sub-contractors, according to a ruling of Judge Arthur M. Wallace of the Jefferson Circuit Court at Louisville. The court was passing on the demurrers of the suit of the Coral Ridge Clay Products Company, involving the American Fidelity Company of Montpelier, Vt., which, as surety for the L. W. Hancock Company, builders at Louisville, sought to claim exemptions. It represented that it did not enter into any contract with the sub-contractors or any third parties, and that, while the original contractor for which it was surety may have failed to satisfy the mechanics and material-men, it should not be held liable. In overruling the demurrer the court said: "We will not constitute these hired sureties as favored wards of chancery, but we insist upon holding them to a fair, reasonable, business-like and equitable interpretation of the terms of their obligation; nothing more; nothing less." The Coral Ridge Company is seeking to recover $1,667 for material furnished the L. W. Hancock Company, hollow-tile, for a warehouse erected in the rear of a Fourth street building in Louisville. Other material men have filed intervening petitions and have asked that the surety company be held responsible for their claims.

T. Bishop of the Southern Brick and Tile Company, Louisville, Ky., announces that the company has received the contract for common-brick for the new warehouse of the Standard Sanitary Manufacturing Company, calling for a half million brick, and for the new Illinois Central roundhouse, calling for approximately the same number. Business is good and the plant is operating full time, altho a better supply of cars would enable the company to get its orders filled quickly. The drain-tile department of the company is extremely busy, Mr. Bishop reports. Favored by the weather and a good year on the farms, the company is doing all of the tile-laying business that it can get workmen to handle. Business offered at this time is having to wait. The system followed by the company is bringing excellent results. Mr. Bishop proceeds on the plan of selling the drain-tile laid in the ground. He and his brother, Alfred Bishop, are in personal charge of this work and visit each job at least once a week, giving the workmen the levels and approving the work completed before the ditches are filled in. In this manner the company is assured that its tile will get the credit of competent installation, which might not be provided if draining were left to local contractors. These contracts are made on a profit-getting basis and not handled on a basis of market price for the tile and cost for the installation. A result is that patrons of the company are invariably pleased with the work of the drainage systems and recommend the Southern company to their neighbors and acquaintances. In consequence, much of the business of this kind comes to the Southern company altogether unsolicited.

Massachusetts

One of the large sheds at the plant of the Springfield (Mass.) Brick Company was practically destroyed by fire on November 20th. The blaze is believed to have started from one of the kiln fires left unattended during the noon hour. The entire structure probably will have to be rebuilt.

Boston agents of New England brick manufacturers report an urgent demand for brick in large and small quantities, while the manufacturers are finding it difficult to fill orders of any size. They report that both coal and labor are scarce. The competition for unskilled labor between different lines of industry is keen and a yard well supplied with men today may be practically without any tomorrow.

Michigan

Twelve carloads of brick are being shipped to Detroit, Mich., daily by the Grand Rapids (Mich.) Clay Brick Company. This company is contemplating doubling its present daily capacity of 75,000 brick during the coming year.

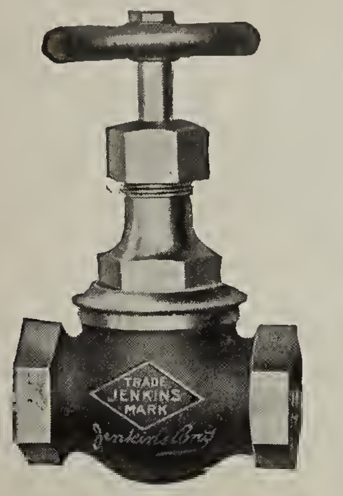
The Sparta (Mich.) Brick and Tile Products Company is being organized with a capital stock of $40,000 to manufacture brick and tile. Among those interested are A. H. Blanchard of Grand Rapids, Mich., C. A. Johnson of Sparta and Frank Wheeler of Toledo.

A forecast of the serious condition that may arise if nothing is done to alleviate the acute coal shortage is seen in the recent cessation of operations of the Wolverine Brick Company of Corruna, Mich., which was forced to close down because of the high price of coal and the

Jenkins Bros. Valves

Specifying Jenkins Bros. means freedom from valve troubles.

Means getting the original Jenkins renewable disc valves, with body, trimmings and all working parts strong and well proportioned. Means getting valves made of a superior grade of new steam metal—no scrap or yellow brass.



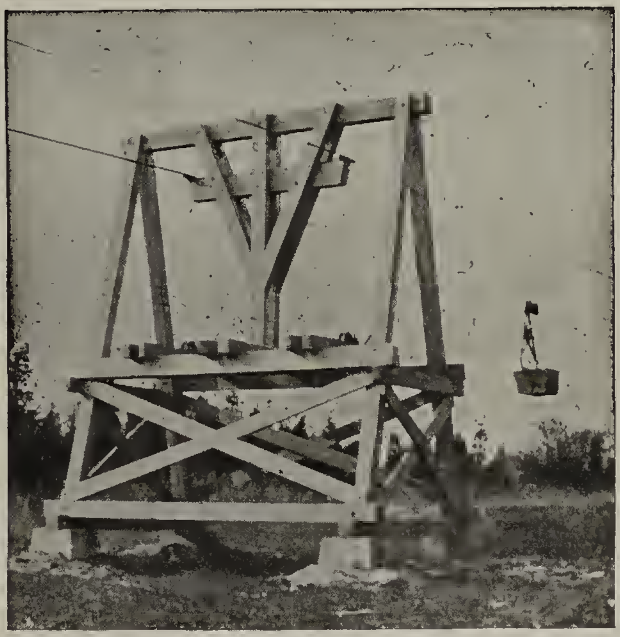
Specifying Jenkins Bros. also means getting valves which seldom wear out in service. All parts are made to gauge and are interchangeable, and when necessary repair parts can be obtained through your dealer at nominal cost. Most of the wear comes on the disc, which can be replaced easily, quickly and inexpensively.

Look for the trade mark and specify the name in full—Jenkins Bros.

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W. Lake Street, Chicago.
Jenkins Bros. Limited, Montreal, Canada, and London, E. C. England.

If the Grade is Sufficient—Gravity Supplies All of the Power



B. & B. Friction Grip Aerial Tramway

requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

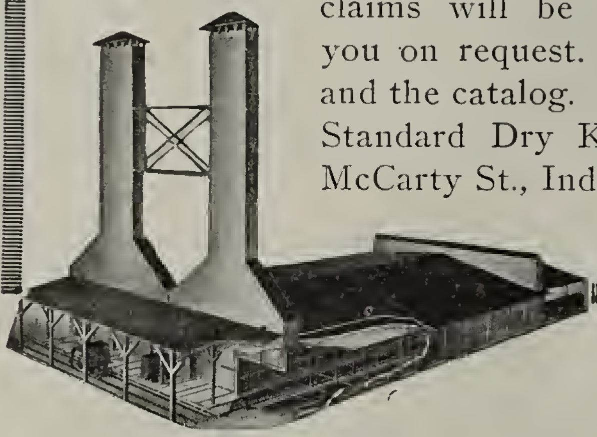
BRODERICK & BASCOM ROPE CO.

New York ST. LOUIS, MO. Seattle

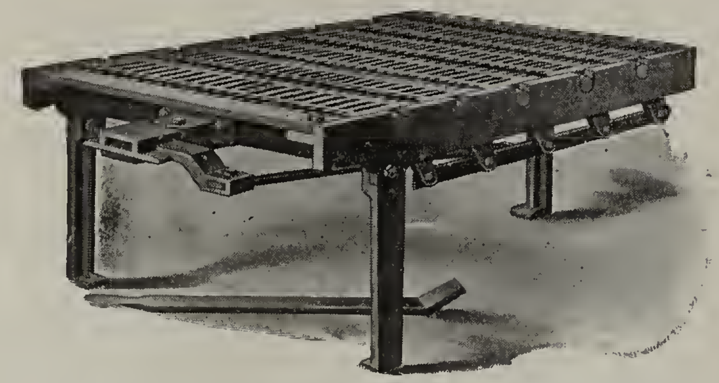
The Standard Brick Drier

produces an unusually high percentage of face brick—at an unusually low fuel and labor cost—while maintenance is so slight as to be a trivial item.

Satisfactory proof of the above claims will be placed before you on request. Write for it and the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.



Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition—it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

difficulty of securing an adequate quantity. Altho the company planned to operate its plant thruout the winter and is at present far behind on its orders, the price of $7 per ton for coal, which the company has had to pay of late, has been found to absorb all profits. Consequently, an order was issued from the Detroit office to close the plant until conditions ease up.

Minnesota

It is reported that an Indiana company is considering the erection of a $300,000 brick and tile plant three and a half miles east of Redwood Falls, Minn.

The Luverne (Minn.) Brick and Tile Company is again in the possession of R. B. Hinkly of that city, who expects to reopen the plant for business next spring.

M. F. Rusfeldt of the Wrenshall (Minn.) Brick Company, writes that his company has just finished its last kiln of white brick, which, by the way, was the largest ever burnt by Mr. Rusfeldt in his forty-seven years of experience in the brick manufacturing industry. The kiln contained 1,600,000 brick and required about six hundred cords of wood to burn. Mr. Rusfeldt asks "Can anyone beat it in Minnesota?"

Missouri

The Pittsburg Paving Brick Company, which until recently maintained offices in the Dwight building, Kansas City, Mo., has moved the general offices to Pittsburg, Kan., and almost all of the business is being attended to from that city. The company has a large number of orders on hand and is running its plant to capacity.

The A. P. Green Fire Brick Company of Mexico, Mo., is now working only on a part-time schedule, altho it has a number of orders on hand. The idle periods are being used to make extensive additions to the plant which consist chiefly of installing new machinery and constructing additional buildings.

The brick manufacturing plants in and around Kansas City, Mo., are working to capacity in every instance and overtime in many cases. The plants are literally swamped with orders, the Hydraulic Press Brick Company's plant and that of the Dom Brick Company having had an exceedingly busy month during November.

The brick manufacturers of Kansas City, Mo., are not so seriously handicapped by the coal shortage as they are by the car shortage. Nearly all of the plants have coal contracts that insure them the needed amount every month, but the increase in business of most of the plants calls for an increased amount of shipping to be done. The present car shortage has caused delays in the movement of much of the material and has been troublesome in many ways.

Montana

The Baker (Mont.) Brick Company was incorporated by E. S. Booth, G. M. Daugherty, J. M. Zoak and others with a capital stock of $25,000 for the purpose of manufacturing brick and other clay products.

Two kilns of 80,000 brick have just been burned at the plant of the Roundup (Mont.) Brick and Tile Company and a third kiln of 200,000 brick is soon to be lighted. This company has just recently constructed its plant and the product that is being manufactured is said to be more than fulfilling expectations.

New Jersey

Business conditions are reported as good in the Raritan river district of Perth Amboy. There is plenty of work, only the shortage of men proving a handicap to operations.

The Monmouth Manufacturers' Association, composed of clay plant managers in Monmouth county, N. J., is furthering its campaign to better traffic facilities in its district. At a meeting on November 2nd, a complaint was made that freight rates are not on file at the Matawan and Keyport stations, with the result that shipments are delayed while the agent secures that rate from Long Branch or some other place. It was stated at the session that it takes from twenty to twenty five days to get car load shipments thru to Chicago. The traffic committee was directed to take the matter up during the month and report at the next meeting. The membership committee reported progress, with two applications for membership pending.

New York

Articles of incorporation have been filed with the secretary of state by the Knoxdale Mines Company of Wilmington, N. Y., which is to have a capital stock of $200,000 and manufacture brick, tile, terra cotta and other clay products.

The Porcelain Products Company has recently been incorporated at New York, N. Y., with a capital stock of $500,000 for the purpose of operating potteries. Edmund Stevens, Evertt Mundy and George T. Maxwell are the incorporators of the new concern and are all of Dover, Del.

North Carolina

The brick manufacturing plant of H. L. Grant and Son, located at Goldsboro, N. C., was recently destroyed by fire, the loss amounting to about $10,000. The fire originated in the boiler room and totally destroyed the plant.

Ohio

The Toledo Vitrified Brick Company of Toledo, Ohio, announces an increase in capital of from $50,000 to $65,000.

School commissioners of Cincinnati, Ohio, recently awarded a contract calling for about 3,000,000 brick to be used in the new Homesdale school, to the Brick Sales Company of that city.

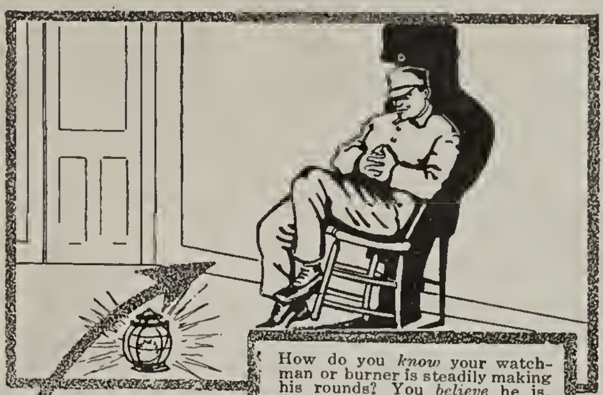
The Lima (Ohio) Hollow Brick Company has been incorporated with a capital stock of $150,000, by Chester M. Cable, W. H. Willis and others. The company will operate a large plant for the manufacture of hollow-brick and similar clay products.

A new plant is soon to be built in North Baltimore, Ohio, it is reported, by the Hoytville (Ohio) Tile Company, whose plant at Hoytville was partially destroyed by fire recently. An option has been taken on a certain tract of land in North Baltimore by the Hoytville company.

The Belden Brick Company of Canton, Ohio, is installing gasoline haulage equipment at its shale pit to handle the cars loaded with clay between the bank and the plant, and will dispense entirely with horses for this purpose as soon as the new system has been tried out.

The Niles (Ohio) Fire Brick Company is constructing a large, modern office building which, when completed, will be unrivaled in the Mahoning valley. The building will be erected in red brick, trimmed with stone, and will contain several office suites.

A fall of slate, caused by a blast in the workings of the Sandy Valley Clay Mine Company at Malvern, Ohio, recently,



Why Waste Your Money ?

How do you *know* your watchman or burner is steadily making his rounds? You *believe* he is, but do you actually know the money you pay him is providing the safety you intended it shall? How valuable would be a nightly record of his work. When $40 will give such records as these will more than double the efficiency of your watchmen, can you still be content to *guess?*

Let us tell you how this watch-the-watchman system works; never failing and unquestionable. To know this costs you nothing.

HARDINGE BROS., Inc.
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Manufacturers Portable Watchmen's Clocks. Energetic Representatives Wanted for Unoccupied Territory.

THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

have again proven their merits

NOTE what this satisfied customer says:

"It gives us great pleasure to state that by the use of our Thwing Pyrometer Equipment, we were enabled to save in fuel alone, during six months, more than enough to pay for the installation and the equipment of same twice over, to say nothing of the satisfaction of knowing at all times just what heat we had in our kilns and improved quality of our product. In other words, your pyrometer has far excelled any hope that we had dared to entertain."

Further information on request. Send for copy of latest General Catalog, No. 8.

Thwing Instrument Co.
3336 Lancaster Ave. PHILADELPHIA

This illustrates the largest recording dial made—it records from three to twelve individual records on one chart—made by a single instrument. The size of the dial is proof against errors.

Furnished only with the

BEIGHLEE "The Pyrometer with A Conscience"

Regardless of varying atmospheric conditions the Beighlee gives absolutely correct temperatures at all times. Other clay products manufacturers have let us prove this to them—why don't you?

Write us anyway—no obligation.

Beighlee Electric Company, Cleveland, O.
Herman A. Holz, Hudson Terminal Bldg., New York City
Representative in New England States

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H.—the **dependable brand.**

Write for circular and prices.

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100 William St. New York

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East Liverpool, O. Kansas City, Mo. Boston, Mass.
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We carry a complete line of high grade chemicals for the clay industry

resulted in the death of two men. It is supposed that they failed to support the mine roof properly before setting off the blast.

The Burton-Townsend Company of Zanesville, Ohio, thru the R. L. Dollings Company, announces that it has closed contracts to supply approximately twenty million brick for large additions to the rubber factories of Akron. The work of erecting these additions will start soon after the first of the year.

Articles of incorporation have been filed with the secretary of state for the Cameron Clay Products Company of Lakewood, Ohio, a suburb of Cleveland. The new company is to have a capital stock of $150,000, and its incorporators are C. A. Alexander, T. J. Moffett, O. E. Schultz and C. Verbsky.

The only damper on activity with the Cleveland (Ohio) Brick and Clay Company, W. M. Nichols reports, is a difficulty in getting empty cars in which to ship brick. While there is some improvement, railroads are supplying only fifty per cent. of the cars needed by this company. Ten cars a day are required at this plant, only five being obtained.

The Ironclay Brick Company, which has offices in the Ruggery building, Columbus, and a large plant at Shawnee, has been compelled to haul water for its plant, because of the extremely dry weather which has prevailed in that section. This is the second occasion in a number of years that this has been found necessary.

According to a prominent manufacturer, there are excellent prospects for an active season in all kinds of clay products during 1917. Even at the high price of materials and labor, many new buildings have been projected and others are being considered. On the whole, it is believed that the year 1917 will be equal to, if it does not surpass, building in 1916.

H. F. White, salesmanager for the Hocking Valley Products Company, Columbus, Ohio, reports a good run of orders considering the lateness of the season with the car shortage still one of the worst features. He is of the opinion that the car situation will grow better when colder weather arrives. The company's plant in the Hocking Valley is hampered by a labor shortage which is curtailing production.

Face-brick manufacturers and sales representatives in Ohio territory are arranging to attend the annual meeting of the American Face Brick Manufacturers' Association at French Lick, Ind., the present week. Many important matters are to come up for consideration and a large attendance is expected. One of the prominent manufacturers believes that three-fourths of all of the face-brick makers in the United States will be represented at the meetings.

The Builders' Supply and Fuel Company, Cleveland, Ohio, has opened its new offices and plant at Shaw avenue and the Belt Line railroad, that city. This firm is only three years old, having been formed by A. L. Goldman and Samuel Greenberg, yet its plant is now one of the most pretentious of the industries in the East Cleveland section. There are facilities for unloading twenty cars at one time on the company's siding.

The new brick manufacturing plant being erected at Port Washington, Ohio, by the Belden Brick Company of Canton, Ohio, is to be in operation by the first of next year. The labor shortage is holding back the construction work at present. The plant when finished will be one of the most modern in that part of the state and will have an annual capacity of 12,000,000 brick. A gas engine will be used to transport the clay from the pit to the machine room.

Charles H. Frank, salesmanager of the Nelsonville (Ohio) Brick Company, reports the paving-brick season drawing to a close. The concern is finishing shipments on a number of jobs both in Columbus and in Dayton. Every effort is being made by the contractors in charge to finish the work before extremely cold weather. According to Mr. Frank, prospects for 1917 in the paving-brick business are extremely bright, especially if the financial situation in the various municipalities is cleared up.

The report of Edwards Ritchie, receiver for the J. M. Blair Company of Cincinnati, Ohio, for the year ending November 1st, showed that the company's business for that period was conducted with a net profit of exactly twenty-seven cents. Receipts amounted to $73,027.61 and disbursements were $73,022.13 and, as there was a balance on hand a year ago amounting to $5.20, the net results of the year's business were as stated. The company has been in the hands of receivers since 1898.

Charles Harrison of the Gaddis-Harrison Brick Company, Columbus, Ohio, speaking of present conditions in the brick trade, said recently: "The season is getting a little late and we detect a slowing up of business as a result. But there is still a good volume of orders and inquiries, and trade is all that can be expected for this time of the year. I look for a good deal of building next season, especially in school work. Many bond issues for school construction were approved at the last election."

Residents of Cleveland, Ohio, are jubilant over the approval of a bond issue for $3,000,000 to cover street improvements, which was voted on at the recent election. For three years the public spirited citizens, as well as civic organizations and the Cleveland Automobile Club, worked for a large sum of money to be spent on the improvement of the city's streets. The proceeds from the bond issue, together with other funds available for street improvement, will mean that $6,000,000 will be spent on street work in the "Sixth City" during the coming year.

New equipment and furnishings, in which the use of brick is the predominating decorative feature, make the new offices of the Lake Erie Builders' Supply Company, Cleveland, Ohio, among the most attractive in that city. The new offices are now nearing completion in the Scofield building. The removal of the general offices of the Lake Erie from East 55th street to the downtown section is one mark of the progress of the firm under the general management of J. P. Jerka. The Lake Erie now has four yards and warehouses and two new locations where new warehouses will be erected in the near future.

The importance of building activities in the Cleveland (Ohio) district was brought out by Arch C. Klumph, president of the Cuyahoga Lumber Company, and retiring president of the Builders' Exchange, at the annual banquet of the exchange recently. Mr. Klumph produced figures showing that 1916 building permits will involve an expenditure of $33,000,000, as compared with $13,000,000 in 1906 and $4,000,000 in 1896. E. M. Carleton, vice-president and general manager of the Mills-Carleton Company, was elected a member of the board of directors, which will meet later to select officers for the ensuing year.

Building in Canton, Ohio, has passed the $4,000,000 mark and prospects are that it will reach $4,500,000 before the end of the year, according to figures in the city clerk's office. Twelve hundred and forty-seven building permits have been issued to date. Of that number, it is safe to estimate nearly one thousand were for residences. Probably five hundred others were for residences outside of the corporate limits.

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PYROMETERS
Eliminate Guesswork from the Manufacture of All Products requiring extremely high Temperatures ★ ★ ★ ★

We Manufacture - Thermometers and Instruments covering every Temperature requirement in Metallurgy and Chemistry

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HETTRICK BELTING

He knows that in actual everyday performance the Hettrick belt does its work with perfect ease. He knows it sticks—does not slip—and it lasts. He knows it is proof against water, oil, dust, sudden jerks, over-loading.

Try it—you, too, will find that **Hettrick Red Stitched Canvas Belting Beats Them All.**

Used daily in scores of brick plants for transmission, elevating and conveying.

THE HETTRICK MFG. CO.
TOLEDO, OHIO

SAY I SAW IT IN BRICK AND CLAY RECORD

"Siroccofied" Yard of Webster Brick Co., So. Webster, Ohio

"Has given perfect satisfaction" is verdict of above about their "Sirocco" fan.

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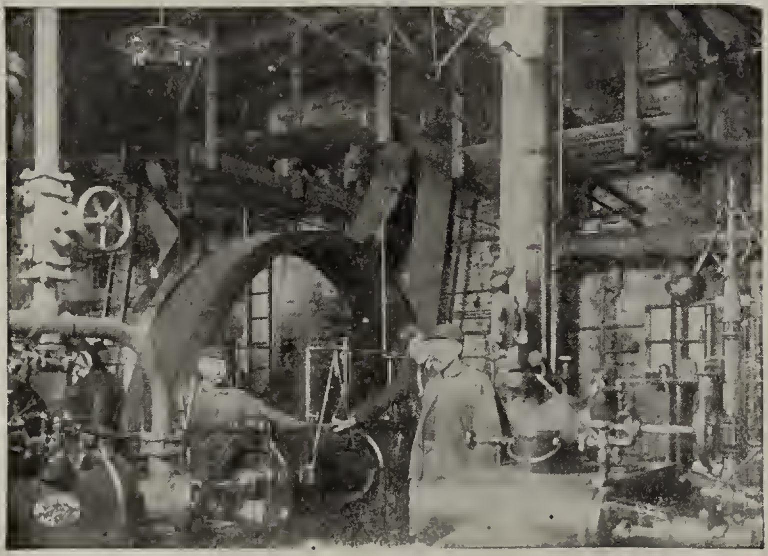
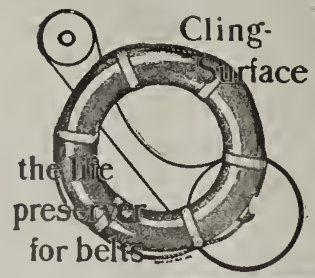
BRANCHES EVERYWHERE



You Wouldn't Think This Cling-Surface-Treated Belt Was Pulling 300 H. P.

This 16-in. Gandy belt, pulleys 12 ft. and 30 in., with 16 feet between centers, is running at 2340 ft. per min. and is pulling 300 h.p., yet under Cling-Surface treatment and the big sag shown **there is no slip.**
Besides giving this belt better pulling surface and more effective contact area on both pulleys, Cling-Surface also waterproofs the fabric, makes and keeps it pliable and practically eliminates maintenance attention and expense.
Your initial order for at least a few pounds of Cling-Surface should go out **today** if you appreciate **real** belt service at low cost. Ask, at least, for literature.



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The total building permits issued in 1915 amounted to seven hundred and twenty-seven with a valuation of $2,005,000. That 1916 building in Canton will surpass last year by two million and a half dollars is a foregone conclusion.

The Adams-Bagnall Electric Company of Cleveland, Ohio, is now completing a large porcelain enameling plant which it has erected for the purpose of improving the quality and service of its porcelain enamel reflectors used for industrial and street lighting. Increased production and the elimination of a large amount of handling are expected to result when the company has its new plant in operation. The plant is being equipped with machinery of the latest design and is to be placed under the direction of men with a thoro knowledge of vitreous porcelain enameling. It will be in operation before January 1, according to present indications.

The Hamilton (Ohio) pike, from Mt. Healthy to the Butler county line, will probably be paved with brick, the estimate of the state highway commissioner covering the improvement having been approved. The amount of the estimate is $164,620. The section of road in question is a part of the Dixie Highway, and it is the desire of the authorities to make it a worthy part of the great north-and-south artery of travel. It is planned to let the contract as soon as possible, in order that the work may be pushed thru to completion in time to be opened with the rest of the Dixie Highway.

Car supply is now the principal feature of the brick business in the Buckeye State. Orders are coming in well, especially for face-brick and shipments are only limited by the available supply of cars. On most of the railroads in Ohio the car supply is only about forty per cent. of normal and on some of the roads the percentage is even less. Manufacturers and shippers see no immediate prospects for a better supply as business conditions are unchanged from several weeks ago. There is a good run of orders for apartment houses, flats, small business blocks and schools. Dwellings are also being erected in large numbers.

Street improvements in Columbus, Ohio, this year have cost the city approximately $750,000. City Engineer Maetzel says that to improve the streets on the program for next year will cost about $780,000, but if the city council holds true to its resolution passed just before the election, there will be no street improvements. The resolution declared it to be the policy of the council to authorize no bonds next year for any purposes except for health matters and other emergencies. This was done because the councilmen are impressed with the importance of stopping the rapid growth of the city's bonded indebtedness and instituting as far as possible a pay-as-you-go policy.

Ten supply dealers from Milwaukee, Wis., were guests of the supply dealers' board of the Society Advocating Fire Elimination, at Cleveland, the last week in November. They were entertained at luncheon at the Cleveland Athletic Club, and later at dinner at the Hotel Hollenden. The visitors dropped into the "Sixth City" offices of the S. A. F. E. unannounced, but were instantly made welcome by Secretary Ralph P. Stoddard and his associates. The delegation came to Cleveland in search of information looking to the good of the trade in their home city. During their trip they also visited Cincinnati, Chicago and Minneapolis.. The visitors included A. C. Tews, N. T. Berthlet, J. P. Whitnal, W. H. Pipkorn, Bruno Kessler, A. F. Haimers, William Blifert, Henry Cook, J. P. Druecker and William T. Taylor.

The annual meeting of the Ohio Builders' Supply Association will be held at the Gibson Hotel, Cincinnati, January 25th, 26th and 27th. Elaborate arrangements are now being made for the meeting. According to H. S. Gaines, assistant to the president, who has headquarters in Columbus, it is the expectation to have five hundred members enrolled by the time of the convention. The arrangements for the coming meeting are in the hands of a committee headed by F. H. Kinney of the Hyde Park Supply Company, Cincinnati, who is also secretary of the state organization. Mr. Gaines is busy organizing the various districts of the state into divisions, of which there are thirty in all. All have now been organized with the exception of three. The association now has more than four hundred members.

The Claycraft Brick Company of Columbus, Ohio, announces that quite a few large contracts have been closed recently. Among the number is one involving 200,000 face-brick for two new buildings at Wilberforce College, Xenia, Ohio; 100,000 for a school building at Kenmore, Ohio; and 75,000 for a church at Syracuse, N. Y. Emmet Howard, salesmanager of the concern, said recently: "Business with our concern is holding up at this time and we are well pleased with orders and prospects for the future. Our eastern business has been especially active as we have received several large orders from the New York district recently. Two weeks ago we believed that November would not be a good month, but with the good orders received we have changed our minds."

The rumored relief from car shortage in the Cleveland district, as seen in the order of the Interstate Commerce Commission to raise the demurrage charges, and put them into effect December 1st, has been dissipated by the ruling of that body in postponing the enforcement of the ruling until March 31st. Protests from shippers in many lines of manufacture, but notably in the lumber industry in the "Sixth City," are believed by fireproof material interests to have had some weight in putting off the day of enactment. As for the manufacturers of brick, clay and allied products, virtually all have seemed in favor of increased demurrage charges. While it is admitted the action of the commission in increasing these charges would work hardship on some interests, they point out this would be inconveniencing a few for the benefit of the many. The principal object is to get more cars and keep them moving more rapidly and, if this move will do it, the Cleveland brick and clay trade is for it.

Ontario

The Dominion Porcelain Corporation, Ltd., has been incorporated with a capital stock of $150,000 at Preston, Ont., Can., to manufacture porcelain and other clay products. The incorporators of the new company are Gideon Grant, 632 Traders Bank building; Melvin MacDonald, 72 Alexander boulevard; Bruce Williams, and others.

Pennsylvania

The Interlocking Key Brick and Block Company, according to a local newspaper report, has been organized at Altoona, Pa., with a capital stock of $100,000.

At a recent meeting of the newly organized Philipsburg (Pa.) Clay Company plans were discussed for the erection of the company's plant. According to present indications, the factory will be in operation early in the spring.

J. B. Hammond and Company of Bolivar, Penn., has purchased the old fire-brick plant at Fort Payne, Ala., which was built several years ago by Boston parties but which, after turning out a very satisfactory product for a comparatively long period of time, met reverses and discontinued operations. The new owners of the com-

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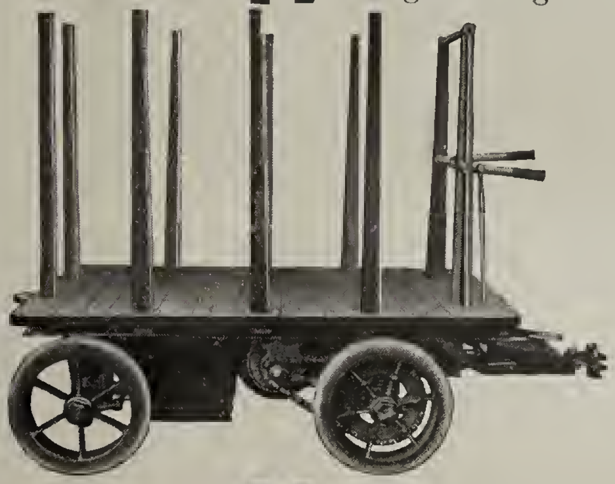
Displaces Hand Labor

One truck has a yearly haulage saving of over $3,000.



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Prompt shipments from stock.

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The "Electromobile"—electrically driven Industrial Truck.

CYCLONE BOILER GRATES

are being installed by clay-products manufacturers because of their **superiority** and the **90-day trial period,** which gives the chance to prove out our claims.

These are the six points of superiority:

1. Even distribution of draft.
2. No fuel gets into the ash pit.
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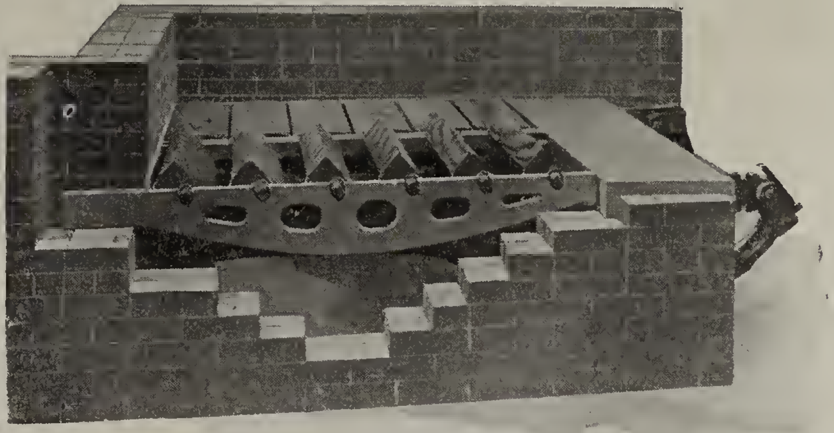
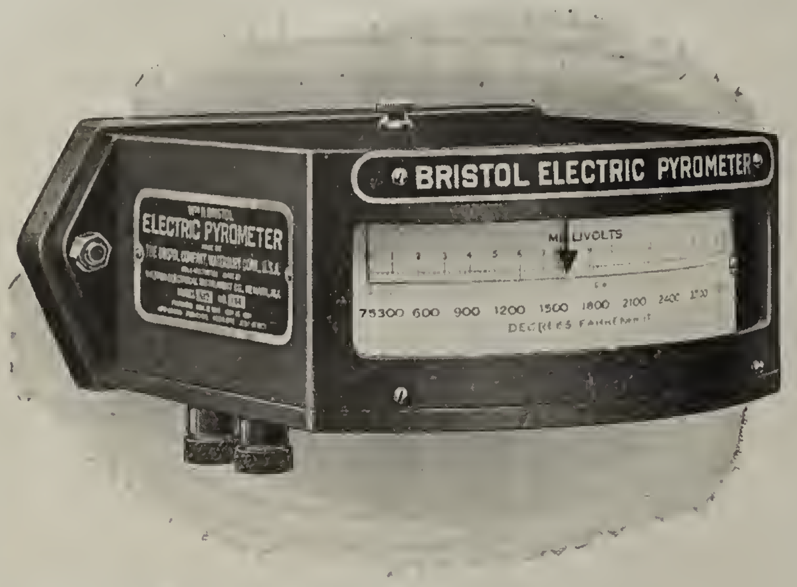


Cyclone Grate-Bar Company
BUFFALO, N. Y.



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Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S
ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

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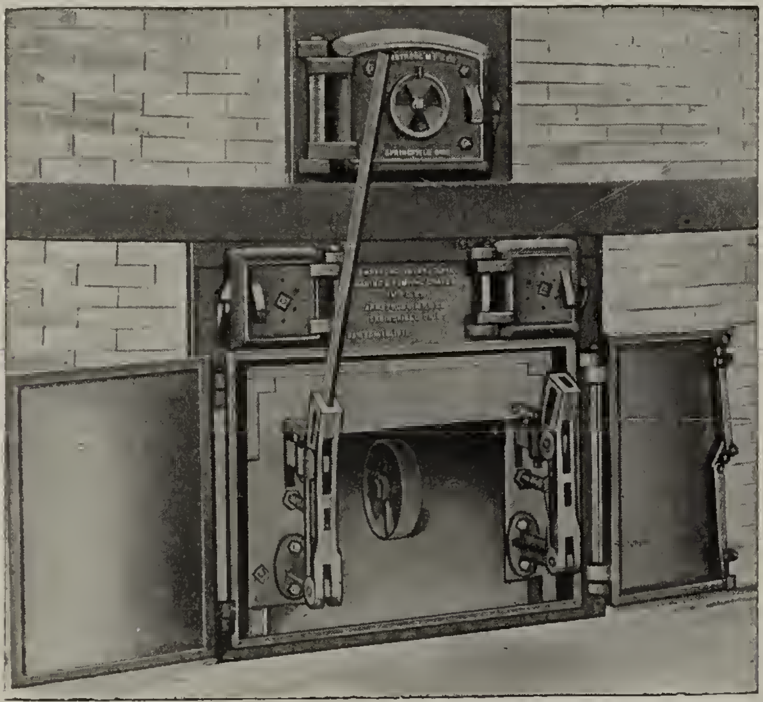


Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

pany contemplate remodeling the plant and enlarging its capacity to 300,000 fire-brick a day. It is expected that the plant will be placed in operation in a very short time.

In a letter recently received from Clyde C. Murray, president of the Reynoldsville (Pa.) Brick and Tile Company, we are informed that that company has purchased the plant of the Sykesville (Pa.) Clay Product Company. Prior to purchasing the plant, which has been manufacturing from 4,000,000 to 5,000,000 full range red rough-textured brick yearly, the Reynoldsville company operated the plant under a lease for three years. Before this time, the entire output of the plant was purchased by the Reynoldsville Brick and Tile Company.

Rhode Island

A strike of laborers recently has badly handicapped the manufacture and shipment of brick at the yards of the Ashaway (R. I.) Clay Works. Altho the company had standing orders calling for the shipment of two carloads of brick a day, only half that amount could be shipped for nearly two weeks during the middle of November. The fourth filling of the season for the continuous kiln at the company's plant has just been burned, in which six hundred and twenty-five thousand brick were finished, making an excellent record when the adverse conditions under which this plant operated at times are taken into consideration.

Saskatchewan

The Dominion Fire Brick and Clay Company, Ltd., has been incorporated with a capital stock of $500,000 at Moose Jaw, Sask., Can., by Arthur Hitchcock, Edward C. Mathews, Alfred R. Turnbull and others.

Tennessee

Announcement has been made at Chattanooga, Tenn., of the lease of the Fort Payne Fire Brick Company's plant there to J. B. Hammond and Company of Bolivar, Pa. The lessee will immediately place the plant in operation and begin marketing the product, for which there is a demand in advance of the supply. The Fort Payne plant, which is across the state line in Alabama, was built in the boom days of that Southern town. For a long time it made some of the best fire-brick produced in the South and enjoyed a large trade with the industries in its territory. With the collapse of the boom, the plant shut down and has remained idle for a number of years. It is stated that it will shortly be producing at the rate of 300,000 shapes a month. Chattanooga industries have been suffering from a shortage of fire-brick and furnace linings for some time and the opening of the Fort Payne plant will bring relief.

Texas

Additional machinery is soon to be installed in the plant of the Abilene (Texas) Press Brick Company, which was recently constructed by Power Brothers.

The Frazer Brick Company of Dallas, Texas, have recently granted permission to agricultural exhibitors at the Texas State Fair to be held in 1917 to use their large hollow-tile corn crib at the fair grounds for storing their produce until the fair opens. A more practical and valuable demonstration of the merits of a hollow-tile crib could hardly be suggested, since those who avail themselves of the company's courtesy are all live prospects for this type of farm structure.

Washington

H. S. Wheeler, vice-president of the Far West Clay Company, is an active propagandist for brick dwellings. He has assembled data showing how brick and tile homes may be built at a cost not greater than seven or eight per cent. more than wood. He shows that a satisfactory brick dwelling can be erected for from $2,500 to $3,000.

The new Home Economics building at the University of Washington, Seattle, has just been completed, the fine three-story structure being faced with the beautiful "rug fabric" brick made by the Far West Clay Company of Tacoma. This material was selected because it can be produced in such a great variety of colors and be made to harmonize with the other features in the buildings. The building is of the Tudor style of architecture and has trimmings of terra cotta.

Wyoming

At a recent home products dinner given by the Commercial club of Sheridan, Wyo., Carl F. Kneisel of the Sheridan Press Brick and Tile Company spoke of the development of the brick business in that city and announced that his company, after years of experimenting, had at last been successful in producing a face-brick of good quality. According to Mr. Kneisel the company is planning to install additional machinery for the manufacture of this type of brick, and to enlarge the capacity of the plant to such an extent that it will be able to supply the city's wants entirely.

* * *

To Revive Victoria Co. (Tex.) Brick Industry

Plans are now under way for a revival of the industry in Victoria, which was once one of the principal brick-producing counties of Texas.

According to the testimony of experts, the clays along the Guadalupe river, the Arenosa and other creeks in Victoria county are among the finest in the state for the manufacture of vitrified brick. In the 30's and 40's Victoria ranked as the leading brick manufacturing center of Texas, the products of the local factories being shipped abroad from the old port of Indianola and to the interior of Mexico over the old Chihuahua trail. There were twenty-five or thirty brick yards located along the river within the limits of the city, and nearly all of the early buildings of Victoria were built of brick manufactured at these yards. In fact, the oldest structure in Victoria today is a brick building on South Third street, erected in 1831.

One of the most extensive plants for the manufacture of brick in Victoria county was established by Winn Traylor, deceased, whose heirs abandoned the brick for the cattle business. The industry was given great impetus in 1845 by the arrival of German colonists who were familiar with the business, and undertook it with enthusiasm. The industry finally died out, however, when importations of lumber from Florida began coming in, and Victoria remained without a brick factory until 1899. In that year a company of local business men, headed by T. A. Heath, established a plant, which was operated for three years. The Victoria City Hall was built entirely of this brick, except those used in facing, and 250,000 of them were used in the construction of the Victoria High School building. The factory failed, principally because its product was so hard that it could not be broken readily with a trowel, and also because it was not successful in producing a "dressy-looking" brick.

Keep the Plant
Busy in the Winter Days

The arrival of freezing temperature in the shale and clay mining territory compels many clay-product plants to shut down. Their production is limited by weather conditions and only a partial profit is derived from the plant.

By resorting to new methods of operation and

By Blasting With

DU PONT

RED CROSS

Low Freezing Explosives

many of the brick and tile plants are able to keep their machinery supplied with raw material throughout the winter months.

Why have an idle plant when a few charges of explosives properly placed will supply an abundance of shale and clay for steam or hand shoveling? Get the maximum production and profit. Operate a 12-months' plant —not one governed by Jack Frost. Keep your plant working every day.

Learn this new way to blast shale and clay.

**Send for free booklet:
"Explosives for Blasting
Shale and Clay."**

E. I. du Pont de Nemours & Co.
Powder Makers Since 1802
WILMINGTON, DELAWARE

Westinghouse Motor Driving a Dry Pan

Why Individual Motor Drive Is Best

No. 1

Throw off the belts from all machines and test the power it takes to operate the line shafts—you will be surprised to discover what a large percentage of power is wasted.

Westinghouse Motors

with central station power—saves power bills—when the motor stops the power cost stops—machines can be arranged so that handling of materials is reduced to a minimum.

A card brings Booklet 3072

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.
Sales Offices in All Large American Cities

The principal objection that was offered to the product as a building material—its hardness or toughness—makes it most attractive as a paving material, and the resumption of its manufacture as such is most desirable to meet the demands of Victoria and many other cities of the section that are considering paving with brick. Sidewalks constructed of Victoria brick seventeen years ago show little, if any, wear. Brick manufactured at Garrison, a town near Nacogdoches in Jefferson county, are said to be the only brick manufactured in the state that compare in hardness with the Victoria brick. Several of the streets of Houston, Tex., were paved with Garrison brick in 1882, and they are practically as good as ever, after thirty-four years of continuous traffic.

The city council of Victoria plans an investigation of the matter of making paving-brick, and if the council finds that a saving can be made by using local brick for paving, it is said that it will offer to purchase a quantity sufficient to induce a manufacturer to establish a plant for making them.

According to reports made by certain Ohio experts who have recently investigated the field, the clays of this section are not only adapted to the manufacture of paving-brick, but sewer pipe and other kinds of earthenware as well.

* * *

Mayor of Davenport Favors Brick Pavements

It will be a pleasant surprise to many to know that John Berwald, formerly manager of the Davenport (Ia.) Brick and Tile Company and at present a member of the American Silo and Material Company of the same city, has had the title of Mayor attached to his name. This honor was obtained at a recent election and gives Mr. Berwald the leading position in Davenport.

One of his moves since taking the oath of office has been to strongly recommend the use of brick pavements to as large an extent as possible. The following is a letter recently addressed to the members of the city council by Mr. Berwald and shows definitely the progressive stand that he has taken on this subject:

"At the time I was with the Davenport Brick and Tile Company," writes Mr. Berwald, "I dropped the manufacture of paving-brick, as I knew that brick paving would have to be done on a larger scale to be successful. But today, I am positive that there is not a better paving in the market than good brick paving and, since a tar filler is now used in between the brick joints, it makes it as smooth as any other paving; and being more reliable than any other paving material in the market, it is the cheapest in the long run."

* * *

Trenton Porcelain Concern Buys New Plant

Thru negotiations recently closed, the Electric Porcelain Manufacturing Company of Trenton, N. J., has taken over the pottery building formerly occupied by the Climax Pottery Company, and seven lots adjoining it. It is the plan of the porcelain company to move its business to the property purchased and which is now undergoing extensive alterations.

It is the announcement of the company that next spring a $70,000 addition will be built and the business of the company will be greatly enlarged. Plans for the new addition are about finished. It will be modern in every detail and will be about 150 feet in length and 127 feet

in depth. When the porcelain company moves into its new quarters it will increase its number of employes to about six hundred.

The old Climax Pottery is small but complete. It has only a single kiln and its accommodations are limited. Before the company takes possession it will expend $7,000 in alterations and the building of one additional kiln.

The Electric Porcelain Manufacturing Company is owned by H. T. Paiste of Philadelphia, who is president of the concern. H. S. Wearsely is treasurer and Fred Whitehead is superintendent. The company has been in business in Trenton for about twenty years. It was originally the plan of the company to move the plant to Philadelphia, but the advantages offered by Trenton kept the industry for Mercer county.

* * *

Camp Company Takes Over New Plant

An indication of the expansion of the burned clay industry in the Cleveland (Ohio) district is seen in the acquisition of new property by the Camp Conduit Company of that city. The Camp interests have taken over the Eggers brick plant at Valley road and the Baltimore & Ohio railroad, Cleveland, and will make extensive improvements for the production of hollow ware. This factory was formerly the property of Haskins & Failes, Detroit, Mich.

The property includes about thirty-seven acres and the plant has ten kilns. Approximately $25,000 will be spent on improvements. With the acquisition of the Valley road plant, the Camp Conduit now has three producing properties in Cleveland, all within the switching limits.

* * *

A Public Service True to Name

In 1913 Congress passed an act creating the Department of Labor. The purpose of this department is set forth in the following words of Congress: "To foster, promote and develop the welfare of the wage earners of the United States and increase their opportunities for profitable employment."

A natural outgrowth of the development of this new department has been the creation of what is now known as the United States Employment Service, which is available to all residents of the United States, citizen or alien. It is a service for the public and is free to both employer and employe. The country has been divided into eighteen districts or zones, with headquarters offices in each zone and such sub-offices as are found advisable. The result is that there are now eighty free employment offices operated by the federal government, located at the important industrial centers of the United States. These offices are conducted both on the mail and personal plan, and any employer or employe, no matter where living, can use these offices, the former to secure help as may be needed, and the latter to secure needed employment, without expense to either. The postoffices were made local depositories where the employer can secure, upon demand, order blanks for help, and the employe an application blank for employment, both of which will be transmitted by the postmaster to the proper headquarters office without expense.

GANDY and Gases

"We are pleased to advise you that the Gandy Belting we have been using for some time in our forging shop has given us excellent satisfaction. We use it in places where it is exposed to the heat and gases in preference to anything else we have ever tried. We would recommend it to anyone being obliged to expose a belt to such conditions."

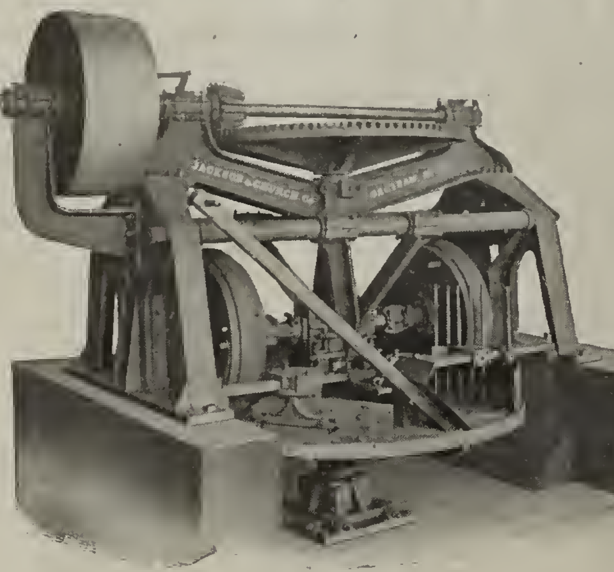
The gases common to some manufacturing operations and so unavoidable in many plants, are exceedingly harmful to most belting.

This latter shows what action a manufacturer should take when he learns that such conditions are shortening the life and service of his belts.

Aside from being advantageous in duties such as this, GANDY Belts are equally superior in conditions where oil, steam, water, heat and dust are encountered.

Gandy Belts in all kinds of belt service, live up to the reputation for dependable service that they have gained in 39 years. They are ready to prove themselves dependable in your work—and save you money at the same time. Prices, samples and full information sent upon request.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street



Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

The Proper Size of Friction Clutch Mechanism

H. J. Smith, Member A. S. M. E.

Chief Engineer of The Hill Clutch Company

The subject of choosing a friction clutch for a pulley or for a shaft coupling in many cases does not receive the attention it deserves. Much of the trouble with friction clutches arises from lack of judgment in picking the proper size clutch for the work to be done. Too often the work, which is generally of an indefinite character, and difficult to measure accurately, is underestimated or understated; consequently too small a clutch is purchased. As sometimes happens a purchaser with his eyes on the low price of a small clutch, and his finger on the catalog rating, deliberately ignores all other considerations of inertia loading, speed, frequency of engagement, etc., and buys too small a clutch. Then the inevitable wear on the hard pressed friction surfaces is followed by frequent adjustments which exasperate the purchaser. In some cases where the clutch is entirely disproportioned to its work, then actual breakage of clutch parts causes the purchaser to condemn the clutch and heap abuse on the head of the clutch builder.

HORSE POWER DEPENDENT UPON SPEED

Now the horse power transmitted by a clutch is dependent upon speed, and should always be mentioned in connection with the shaft revolutions per minute. Manufacturers of clutches have no standard method of rating, but are alike in one particular—that the basis of rating is 100 revolutions per minute.

Most ratings are merely shrewd guesses, based upon the previous guesses of the pioneer inventor and clutch builder, Harry W. Hill of Cleveland, Ohio. Some manufacturers have guessed more than once, without altering their clutch in any particular, and raised the ratings from time to time in order to bring more money for the same clutch. It is only in the last few years that clutches have been actually run at 100 revolutions per minute, and their capacity up to their breaking point measured by a Prony Brake. By this rational method of brake testing the clutch builder can allow a certain factor of safety, and knows by actual tests that the breaking point will be three or four times the clutch rating, and he has been governed in hitting on the precise rating for a particular clutch by figuring back from its known breaking point. This reduced capacity used as the clutch rating must also be a fairly low value when the adjustment of the wooden friction shoes is considered. If a clutch is compelled to work up to too high a rating, then too frequent adjustment of shoes becomes necessary because of the burning away of the wood friction surfaces. Stopping machinery for adjustment is not only annoying but is often a costly matter. On the other hand if the clutch is rated low, and is large for the work, it is operated from year to year unnoticed, and with little or no cost for repairs.

CONSIDERATION OF THE CHARACTER OF THE WORK

The indeterminate data in the eyes of the clutch builder is the character of the work to be done, the effect on the clutch mechanism of impact at various number of revolutions and as to what are satisfactory periods of adjustment due to overload, high speed, or frequency of engagement and disengagement of the clutch.

There are many installations of clutches applied to particular cases where the impact of inertia loads at starting run to very high values in turning effort, and larger clutches than ordinary are advisable. For instance, the starting of flywheels, ball and tube mills, attrition mills, etc., are well-known examples in which the size of clutch cannot be determined by the actual power to drive at full speed, but is actually dictated by the power required to start. It is not uncommon to find that twice the power is required to start a load as is afterwards needed to drive the load. As a general proposition the starting is always the hardest work that a clutch is subjected to. So it follows that friction clutches should be rated on their starting ability, and in choosing a clutch for a given work the starting load must be determined by actual test, estimated or dictated by experience.

As an illustration, we will suppose you want to operate some machine from your line shaft. You, naturally, therefore turn to the maker's catalog, wherein you will probably find the power to drive the machine at its normal speed, but as the maker must compete with others, his estimate of the power required for his machine is likely to be low; yet at the same time he takes good care to insure driving capacity by providing a good size pulley of ample face width. According to the kind of belt, and its speed, the machine may absorb momentarily, when starting or even normally when running, more power than the stated rating of the machine. Now belting has no one absolute transmitting power but is dependent on its tension, upon its structural strength, upon its speed and the amount of frictional contact. If the capacity of the belt is founded upon well proven values, then according to the speed, it is easy to assign horse power values to the pulleys on which such belts run.

Engineers vary widely on the transmitting capacity of the standard double leather belt, or of six-ply rubber belt which is practically equivalent. Nearly every catalog has different values. Of course there should be a belt horse-power table that can be taken as a standard, and the following table is offered for this purpose. Many years of trial have proven it convenient, consistent and conservative. It is based upon the following assumptions and formula:

H. P. OF DOUBLE LEATHER BELTING

Arc of contact 180° centrifugal effect based on a one foot strip, one-inch square sectional area (weight 56 pounds per cubic foot) moving at V-feet per minute.

T equals 90 lbs. per 1-in. width of double belt ⅜-in. thick, or t. Then H.P. equals

$$\frac{V\,(T - .0000033\ t\ V^2)}{33000}$$

The complete H.P. values of double leather belts are given for pulleys up to 96-in. diameter revolving 100 R.P.M. See pages 76-77 of the Hill Clutch Co.'s General Catalog No. 11, or page 16 of the Hill Clutch Co.'s Friction Clutch Catalog No. 8.

For ordinary speeds of two or three times 100 R.P.M. these values may be multiplied accordingly without serious error, although in reality higher speeds will reduce the proportion in h.p. capacities, due to the effect of increased centrifugal force throwing the belt away from the pulley face.

METHOD OF MAKING SELECTION

Now in the past it has been customary to select a clutch for a given pulley on the direct basis of equivalent horse power. For instance: A 60-inch pulley with a 12-inch double leather belt, it will be seen from the table, has a capacity of 49.70 H.P. at 100 R.P.M. Formerly a clutch rated at 50 H.P. at 100 R.P.M. would have been chosen irrespective of the actual dimensions of the clutch.

While this choice was apparently logical, experience has shown that ordinarily a 50 H.P. clutch is too small for satisfactory service. The sizes of clutches which are now chosen for ordinary service conditions are shown in the diagonal column. For this example a 75 H.P. clutch is proper and sometimes for very severe service even a larger clutch than shown in the table should be taken.

The reasons for the selection of clutches for the pulleys tabulated are primarily two.

1st. A clutch must be able to start from rest its shaft or pulley, belting and driven machine. It must overcome the friction of the whole mass at rest, overcome the often tremendous inertia loads due to acceleration of that mass, and all the time while doing so the friction surfaces are subject to wear under the low friction of motion, which is usually about 50 per cent. of the friction of rest.

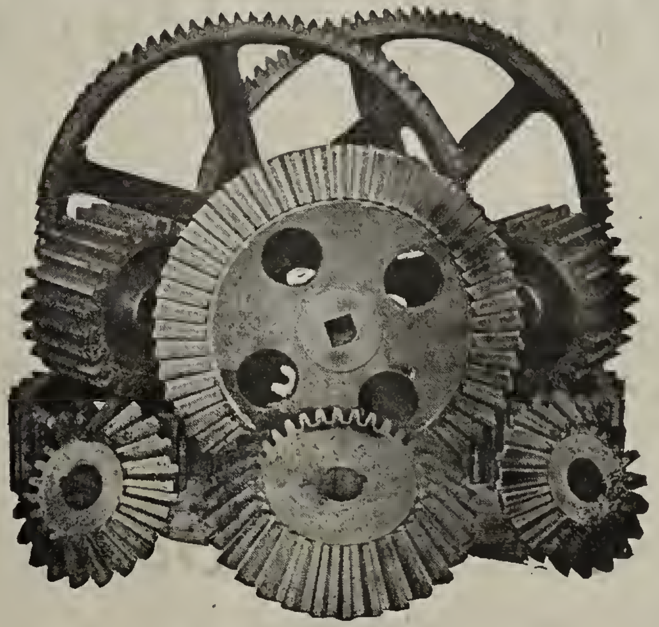
If clutches were engaged at rest, and the whole mass brought up to speed at once, then the clutch would have the advantage of the friction of rest. The wood shoes would not be worn and the clutch would exert its rated h.p. capacity; and in this case a 50 H.P. clutch would suffice. Such an installation is not the normal one because the clutch would then be of use only to disengage and stop a shaft or machine.

All **good** brick machines are equipped with

NUTTALL

Cut-Steel

GEARS



Too many brick machines that are **otherwise** good do not measure up to expectations because they are made with cast tooth gears. If **your** machines are in the "otherwise" class go out and keep your eyes on the gears. It won't take you long to realize why you don't get all the capacity you expected, or why your power fuel costs are too high.

Change your present machines to cut steel gears—then insist on cut steel gears on future purchases, and you'll cut down power cost and repairs.

Ask us for Bulletin No. 19.

NUTTALL—PITTSBURGH

Are There

PROFIT LEAKS

In

YOUR KILNS?

YOU know the signs—too much coal, too much time to burn, not enough **FIRST QUALITY WARE.**

Let us help you stop these leaks. Records of coal and time will help. Give your Burner intelligent co-operation. Make him something more than a coal-profit shoveler. Make it worth while for him to do his best, and stand over him enough to see that he does it.

You are Spending too much Money for Coal, Time and "Off-Quality" Ware

Don't neglect this department of your plant. If you appreciate what your Burner is really up against, you will want better kilns. Other progressive clayworkers have found that **HOOK DOWN DRAFT KILNS** are a **big improvement** over the kind ordinarily used.

Many of them **saved a third of the fuel** formerly required and **cut their burning time in half.** We will send you their names so that you can check our statements.

An estimate of what we can do for you, based upon what we have done for others, gladly furnished. Give us the size and number of your kilns, the kind of ware you make and your present burning time and fuel consumption.

You can begin to make this saving in your plant a little sooner if you write today.

HOOK PATENT KILN CO.

Spring and High Streets

COLUMBUS, OHIO

Kiln Bands, Grate Bars and All Accessories

Hill Clutch Catalog

As the ordinary use of the clutch is to engage as well as to disengage, allowance in its size must therefore be made; consequently, a 75 H.P. clutch will not only give better satisfaction on the 60-inch x 12-inch pulley, but is the logical size to use.

2nd. Freedom from clutch adjustment demands a clutch amply able to start its load without wearing or burning the friction surfaces. High speed, heavy inertia starting loads and great frequency of clutch engagement, or the use of too small a clutch for the load, soon wears away the effective wood shoe surfaces. To avoid this, larger friction surfaces, and a more powerful clamping action of the jaws are necessary, and these are, of course, found in a larger clutch.

Table No. 1, in addition to its value as a power table for belts, is also a standard for the proper size of clutch for any pulley up to 96-in. diameter, using a 4-in. to 28-in. double leather belt. The diagonal columns show the proper clutch for ordinary service conditions of these clutch pulleys.

Most of the above remarks apply equally well to shaft coupling friction clutches. In the simple case above taken the solid pulley 60-in. x 12-in. belt may be mounted on a shaft and driven by a clutch coupling, in which case the same 75 H.P. clutch should be used as with the loose clutch pulley for identical reasons.

In more complex cases where several pulleys on a shaft are driven by a single clutch coupling, the clutch is properly determined by the size of shaft; altho when the size of the largest pulley is known care should be taken to see that the clutch is not smaller than the one designated in the table for that pulley.

The sizes of shafts are usually taken according to the following formula:

$$D'' \text{ equal } \sqrt[3]{\frac{75\times HP}{R}}$$

In which D'' is diameter of shaft in inches.
HP is the delivered Horse Power.
R is revolutions per minute.

Now it must not be thought that the shaft so figured will transmit a certain horse power and no more, for there is a large factor of safety taken into account, and a homogeneous steel shaft will on occasion transmit a far greater horse power than given by this formula; in fact the factor of safety for the shaft exceeds that of its clutch of equivalent capacity, so in no case should the equivalent capacity of the clutch be below that of the shaft when both are figured with the same factor of 75 as a basis.

Transmission manufacturers ordinarily make no consistent equivalent shaft determination for their clutch couplings, so there is no settled standard. Still as in the foregoing clutch pulley table, and with the same rating of clutches, the following table of h.p. capacities has been thoroly tested out, and is offered as a standard table of transmission line shaft capacities.

Diameter of Shaft in Inches	Number of Revolutions per Minute							
	25	50	100	200	300	400	500	600
$1\frac{7}{16}$	1.1	2.2	4.4	8.8	13.2	17.6	22.	26.4
$1\frac{11}{16}$	1.8	3.6	7.2	14.4	21.6	28.8	36.	43.2
$1\frac{15}{16}$	2.7	5.4	10.8	21.6	32.4	43.2	54.	64.8
$2\frac{3}{16}$	3.7	7.4	14.8	29.6	44.4	59.2	74.	88.8
$2\frac{7}{16}$	5.2	10.4	20.8	41.6	62.4	83.2	104.	124.8
$2\frac{11}{16}$	6.9	13.8	27.6	55.2	82.8	110.4	138.	165.6
$2\frac{15}{16}$	8.9	17.8	35.6	71.2	106.8	142.4	178.	213.6
$3\frac{3}{16}$	11.3	22.6	45.2	90.4	135.6	180.8	226.	271.3
$3\frac{7}{16}$	14.2	28.4	56.8	113.6	170.4	227.2	284.	340.8
$3\frac{15}{16}$	21.3	42.6	85.2	170.4	255.6	340.8	426.	511.2
$4\frac{7}{16}$	30.2	60.4	120.8	241.6	362.4	483.3	604.	724.8
$4\frac{15}{16}$	41.6	83.2	166.4	332.8	499.2	665.6	832.	998.4
$5\frac{7}{16}$	55.3	110.6	221.2	442.4	663.6	884.8	1106.	1327.2
$5\frac{15}{16}$	72.	144.	288.	576.	864.	1152.	1440.	1728.

In the fourth column, under the heading of 100 R.P.M., are given the h.p. capacities of shafting which match identically with the capacities of the clutches, strong enough under normal service conditions for their respective shafts. From this column are taken the "Equivalent Shaft" values for friction clutch cut-off couplings.

Head shafts and jack shafts between the power and the line shaft are of larger diameter than the latter for the same H.P. A factor of 100 or even more may be used instead of the 75 of the above formula.

Whatever the reason for this increased shaft diameter whether it be a provision against deflection under heavy revolving masses, the pull of belts, or the thrust of gears, or whether as a provision against increased torsion and shock in overcoming the friction of rest and inertia stresses, the fact remains that at this place a higher factor of safety is desirable.

When this is true of the shaft it is also true of its clutch coupling, which should be chosen not by its h.p. rating but rather by the shaft diameter. The capacity of the clutch should at least be equivalent to the shaft, and preferably greater.

Handling Coal and Ashes

The Link-Belt Company of Chicago has just issued two new bulletins of particular interest to the engineers of larger clay plants.

Bulletin No. 296, entitled "Handling Coal in the Victor Power Plant," was written by Henry J. Edsall, M. E., and is a reprint from the June 15th issue of "Practical Engineer."

It describes in detail the design and installation of the equipment necessary to handle the coal for the big "talking machine" plant.

Bulletin No. 288, by the same author, describes the coal and ash handling equipment of the William H. Grundy Company power house.

All machinery used is Link-Belt machinery, and particular attention is devoted to the Pick carrier used in both of the above noted plants.

Modern power transmission of materials, both conveying and elevating, is one of the ways thru which lowered production costs are being made possible in clay plants. All advanced thought is demanding better mechanical methods, and the wide awake, successful engineer or superintendent is informing himself thru correspondence, observation, catalogs, books, etc., of all that is progressive.

These books and others on the Link-Belt Silent Chain are yours for the asking.

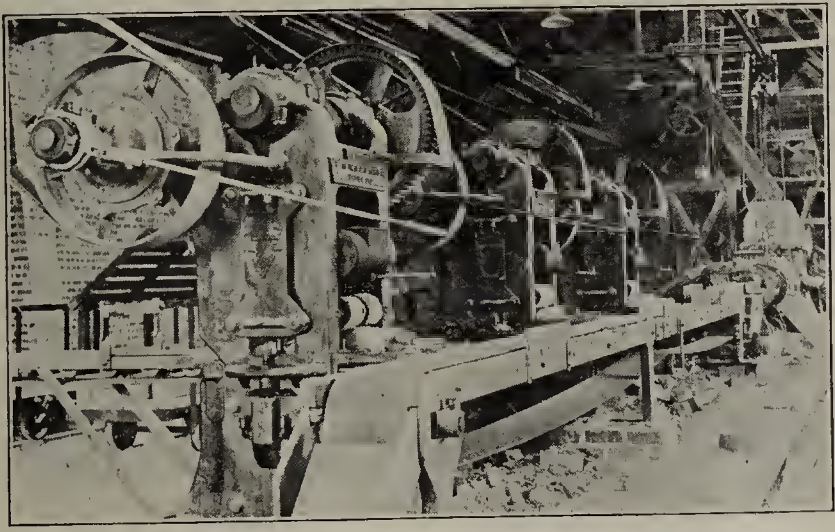
American Represses

The American No. 292 Repress has won its spurs in the paving-brick factories on pure merit.

The stamina of the machine, its rigidity, and its ease of repair are strong arguments for its use. In addition the speed with which it turns out perfectly repressed blocks has earned for it high tribute.

It is self-evident that when such firms as C. P. Mayer, The Burton-Townshend Company and The Streator Clay Manufacturing Company, all install American 292 represses, that there are inherent points of value in them not possessed by any other machines.

No account will be given here of merit points except to note that all the moving parts are above the dirt and practically within sight of the operator's eyes.



Battery of American No. 292 Represses at Plant of The Streator (Ill.) Clay Manufacturing Company

The RE-ORDER Gives the PROOF

HERE IS ANOTHER *pulley 60" diameter x 57" face to transmit 1500 H.P.—one of two which was photographed just before shipping to our customer.*

A SAVING OF $3,400 was made by this customer in June, 1911, by installing a similar pulley to avoid a rope drive in connection with a 1400 H.P. engine with a 24 foot fly wheel driving to a 53" pulley on 40 foot centers at a belt speed of 5700 feet per minute. This replaced a plain cast iron pulley with a tightener (which was taken out) which constantly slipped badly. (A very expensive rope drive was the only alternative.)

NOW AFTER FIVE YEARS of the hardest kind of use this customer comes back with a re-order for two more of these big pulleys.

ISN'T IT WORTH YOUR WHILE to find out how Cork Inserts will help you? We have more interesting evidence on drives, both large and small, that you should see.

THE SLIP-STOPPING PULLEY

THE CORK INSERT CO.
168 Federal Street
BOSTON - - MASS.

SEND THIS COUPON FOR CATALOG

Please Send Catalog.

Writer's Name..........................
Position..........................
Firm Name..........................
Address..........................

SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.
NEW YORK PHILADELPHIA PITTSBURGH

The three presses placed in the plant at Streator by the American Clay Machinery Company of Bucyrus, Ohio, are shown in the accompanying photograph.

For the Smaller Clay Plants

It has been demonstrated time after time that in the great majority of cases the small steam shovel is more efficient and considerably cheaper to operate than the pit gang using hand shovels.

The Osgood 18 is designed particularly for the small plant and it is an economical investment even tho it is often used only a portion of the time. Where enough clay is to be gathered to require the shovel to be operated with a full crew for the full ten hours, then the usefulness and lower cost of this machine is capable of proof without any possible doubt.

In the Osgood 18 advantage has been taken of the experience gained in the building of machines of all sizes, and in its design are incorporated all of those principles of construction which are necessary for long life, large capacity and ease of operation.

A few of the important features common to both large and small Osgood shovels, manufactured by The Osgood Company of Marion, Ohio, are (1) independent hoisting, swinging and boom engines, (2) horizontal hoisting engines, (3) machine cut gears and pinions, (4) combination boom made of steel and oak, and fitted with two shipper shaft gears, (5) hoisting throttle with lowering control, (6) steam friction clutch for the hoisting drum, (7) pump and injector for feeding boiler, and (8) sight feed oil pump for lubricating the engines.

Thus even in a small shovel are incorporated the ideas and designs that have done so much to make our "big power" shovels so thoroly reliable and for the small plant of approximately 40 to 50 thousand brick each day, the Osgood 18 has no superior.

The most serious problem confronting the clayworker today is to secure good, reliable labor at a reasonable cost. This problem is easily solved by the purchase of a steam shovel. An Osgood 18 will do the work of many laborers. It works just the same during extremely hot or cold weather and twenty-four hours per day, when necessary; is never compelled to stop for rest, and teams and wagons are not delayed waiting on slow hand labor. In short, an Osgood 18 presents a quicker, cheaper and better method of working your pit.

Combustion Engineering Instruments

The Hook Patent Kiln Company of Columbus, Ohio, has recently become the agent to the clay-products manufacturers for The Combustion Appliances Company, manufacturers of draft gauges, gas analysis instruments, gas collectors, etc.

This will be of definite interest to those manufacturers who are interested in the application to their burning of combustion engineering methods, of which much has been said recently in the columns of "Brick and Clay Record."

The Hayes apparatus for which The Hook Patent Kiln Company is now agent, includes not only many forms of differential draft gauges, compact and substantial gas analysis apparatus of the Orsat type, but also includes recording Carbon dioxide machines, Vernier draft gauges, and several arrangements of draft gauges used as efficiency indicators on boiler furnaces.

The Hook Patent Kiln Company has been making some intensely interesting studies of kiln burning and regulation by the use of combustion engineering instruments and pyrometers, altho definite data is not yet ready for publication. Incomplete experiments and tabulations already indicate that a wonderful economy can be expected.

"Inside Information"

This is the name of a new booklet just issued by The Bruce-Macbeth Engine Company, 2134 Center Street, N. W. Cleveland. It is handsomely printed, showing views of engine rooms in which Bruce-Macbeth Gas Engines are in use, and giving a few definite "brass tack" figures and facts as to results that have been accomplished Inside the Engine Room With Bruce-Macbeth Gas En-

J. F. Chambers

gines. This data is covered in less than one hundred words for each installation, all generalities being omitted and specific facts only given. A partial list of users is also given, which shows the character of firms using these engines.

The purpose of this book, as stated by The Bruce-Macbeth Engine Company, is "to present definite evidence to substantiate beyond dispute that Bruce-Macbeth Engines are of proven worth." It contains just the kind of information the contemplating purchaser of a gas power plant is interested in knowing about the equipment he is considering. A copy will be sent free to any interested party upon application.

New Middle-West Representative

J. F. Chambers has just recently joined the sales force of the J. D. Fate Company of Plymouth, Ohio. Mr. Chambers will operate in Ohio, Indiana and Illinois and has already spent some few weeks in the territory getting acquainted.

Mr. Chambers is one of the old guards among clay-machinery men, as he was active in clayworking from eighteen to twenty-five years ago.

During that period he was a stockholder in, and traveled for, the Fate-Gunsaullus Company.

Undoubtedly Mr. Chambers will be remembered by a great many of the clay-products manufacturers who were in business at that time, and with the new Fate line he will surely make many new friends.

Flexible Steel Belt Lacing

That "Alligator" Steel Belt Lacing owes its popularity partly to the ease and speed with which it is applied to belts, is obvious.

To lace a belt it is only necessary to clinch the teeth with a hammer, bend over the protruding teeth and smooth off, and the belt is ready to pull its load.

The Flexible Steel Lacing Company of 522 S. Clinton street, Chicago, is sending samples to applicants.

READ THE CLASSIFIED ADS on pages 1052, 1053. There are lots of "Wants" to be filled.

A Gas Producer

That gasifies more than 40 tons of coal in 24 hours must work uniformly.

Working uniformly it must produce good gas.

With good gas in sufficient quantity the kiln will be efficient and economical.

This is the final result we have attained with the

R. D. WOOD & CO.
Mechanical Gas Producer

For small installations we recommend our Hand Stoked Producer

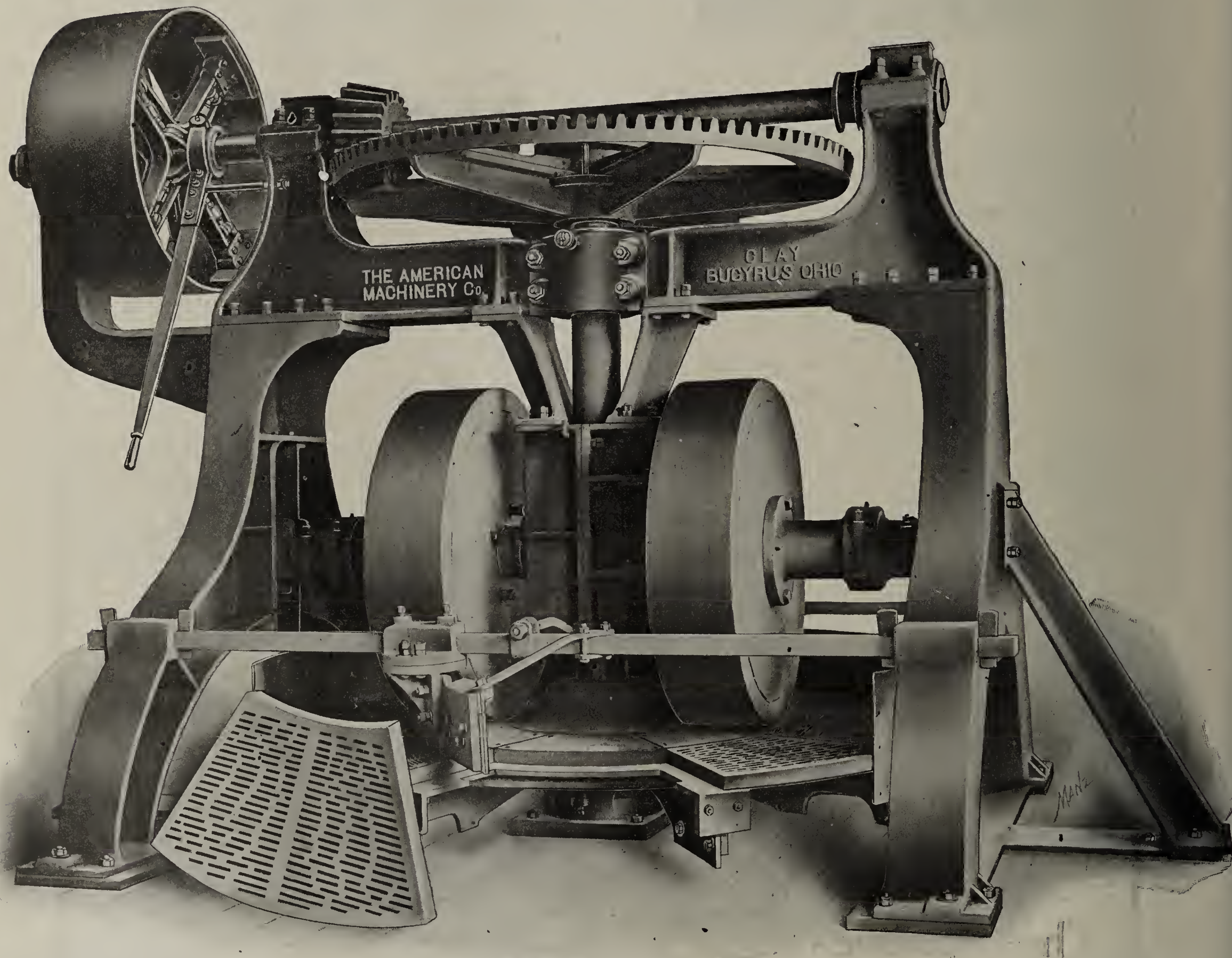
R. D. WOOD & CO.
PHILADELPHIA, PA.

Grinds 250 Tons a Day

This American No. 57 Dry Pan is grinding 250 tons of shale daily in a Paving Brick Plant. It has been in operation 15 months without repairs. If this record compares favorably with your own pan output and you want details of construction and proof of performance, just send for our bulletin on the No. 57 American Dry Pan. This pan will save you big money on clay preparation.

The American Clay Machinery Co.

BUCYRUS, OHIO



SAY "I SAW IT IN BRICK AND CLAY RECORD"

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

We Wish
All of Our Readers a
Merry Christmas

¶ We have been having a pleasant time together—you and "BRICK AND CLAY RECORD."

¶ We have obtained considerable pleasure from anticipating your needs—studying your problems—and then searching for a writer who could give you just the assistance you needed, or where this was not always possible, our own staff has endeavored to supply that want.

¶ From the words of commendation that are being received from time to time, we feel that you, too, have obtained some satisfaction from our semi-monthly visits.

¶ And now, as the year closes, we are looking forward to a continuation of these relations and the pleasure of serving you another twelvemonth.

¶ To "make good" right at the start, we are going to give you a big NEW YEAR'S NUMBER next issue. Lack of space prevents our detailing the contents of this issue here, but take our word for it, it will be worth your year's subscription.

¶ In the first place, there will be a symposium on a pertinent question concerning the coming year. Half the pleasure of your looking forward to this big number would be lost if we should tell you what the subject of this symposium is to be, and so, we are going to hold you in suspense.

¶ In addition to this, Herman Plusch, of terra cotta fame, will begin a comprehensive series of articles in "BRICK AND CLAY RECORD," thoroly covering the manufacture and use of this excellent material.

¶ The second half of "Testing Clay Properties," by A. F. Greaves-Walker will be published in the JANUARY 2ND ISSUE.

¶ "Hollow-tile Farm Buildings Forerunner of a New Era," will give manufacturers of that material something to think about, while the regular departments, some of which have been omitted from this issue, because of a number of convention reports, will not be missing in the JANUARY 2ND ISSUE.

The EDITOR'S CORNER

I heard the bells on Christmas Day
Their old familiar carol play,
And wild and sweet the words repeat,
Of peace on earth, good-will to men.

AS THE TIME draws nigh wherein we are wont to observe the Nativity, who of us does not hear these beautiful and expressive words ringing in his ears—words that we learned in childhood days when the holiday season had more charm for us than it does now, perhaps?

Regrettable as the present struggle of hate across the seas is, we, of a handful of nations, are grateful that we can pass along the words, "Peace; good will toward men," without it seeming hollow mockery. Most of us can look back over the past year of prosperity and plenty and truthfully say that every need has been supplied and that we lack nothing. Very few Christmases have brought the material wealth that this one has, and very few have been productive of such a promising future, filled with opportunities, as now lies before us.

This season of the year in the clayworking industry is characterized by the gathering together of Clay's clans for their annual conferences. Already the conventions have started and they will succeed each other for a short period one after the other until each organization has had its get-together. If all of the conventions accomplish as much this year as those that have been held to date this month, clayworking will soon attain that position among the world's industries that it deserves to occupy and from which it is now yet afar off, because too many of its members have been willing to travel the same path that their forefathers trod in the years gone by.

These days, when epoch-making events seem to be the rule, rather than the exception, conditions are changing rapidly, requiring more than ordinary managerial ability to keep the gap between the cost and the selling price as wide as possible. Now, more than at any other time in the past, is it necessary to watch the corners and to equip ourselves so as not to be deceived as to the profit which we are making in the face of an unprecedented demand, and at the same time, rising costs.

Evidences of co-operation among the manufacturers in the various branches of the industry are coming to light, such as have never before been witnessed. Manufacturers of paving and face-brick are developing a stride on the road of progress that is very gratifying and which bids fair to leave some of us in the rear if we don't hurry.

* * *

Association Experiments

THE SUGGESTION that an association is the logical body to supervise and finance experiments to solve a problem common to all of the members of that association, is something that should not perish in the minds of the clayworkers to whom it was made, nor should it be allowed to get no farther than the printed page.

This particular idea was one of many contained in a paper read by Wm. G. D. Orr before the annual meeting of the Institute of Paving Brick Manufacturers at Cleveland, December 5th and 6th.

The thought should be picked up and made a policy of every association in the industry, for it has the ear marks of progress.

Now, when there are so many problems confronting us, such a policy would not only save money for all concerned, but would open up opportunities which have not been dreamed of, for the more economic and efficient operation of clay plants.

* * *

Astonishing Evidence

WE have heard considerable about the rising cost of coal and labor, with which is contrasted the stationary or slowing ascending prices for clay products, but not until recently have we had an opportunity of looking into this situation more thoroly and seeing actual figures showing the extent to which this condition prevails.

A brickmaker—one who is rather prominent in the industry and who is known to have a dependable system for keeping his manufacturing costs—astounded us recently by showing actual figures from his own books which indicated an increase in the cost of fuel amounting to more than fifty per cent. and of labor somewhere in the neighborhood of thirty-three and one-third per cent., *but a decrease in the selling price of his product of close to two dollars per thousand* for the past year, when compared to the average price for five years previous. And the plant in question is not a two-kiln affair but one of the largest concerns of its kind in the country.

Something is wrong somewhere to bring about such a state of affairs, but who is to blame?

Surely, it cannot be the firm that presented the above figures, for it has an excellent system for keeping its costs and it, therefore, knows what its selling price ought to be. It is not able to maintain that selling price because of a necessity for meeting cut-price competition, or go out of business.

"Oh," you say, "it is very easy to blame the 'other fellow,'" but here is a case where the "other fellow" is to blame, for he does not know what his ware is costing him to make or he would not persist in operating at a loss. Furthermore, we have little doubt but that an investigation would show that the "other fellow" in this case was being informed of his competitors' prices by some grafting contractor, or other type of unscrupulous buyer.

Altogether, the situation is ripe for a healing application of uniform cost keeping and open price.

It is interesting to note that the American Face Brick Association has set out to accomplish both of these goals and the progress which it shall make along the way will be watched with considerable interest.

* * *

Watch the Details

"IT'S the little things that count," is a bit of wisdom that, while a trifle moss-grown, is still as true today as the day it was originated. "Equipment Efficiency," by Fred R. Kanengeiser, appearing on another page of this issue, has to do with the details of clay plant management. It is an article that should be studied—yes, memorized.

It's the pennies that make the dollars, you know, and it is the small jobs, well done, that are a powerful profit earning force in the aggregate.

View of the French Lick Springs Hotel from the Golf Links—A Vista That Became Very Familiar to Many of the Delegates Who Have Joined the Ranks of "Col. Bogey"

STEPS *of* PROGRESS MARK SUCCESSFUL MEETING *of* FACE-BRICK MAKERS

Large Attendance and Big Increase in Membership Spurs Association on to a One Hundred Per Cent. Organization

HIGH-LIGHTS of the CONVENTION

¶Uniform Cost Accounting Made a Reality by Approval of Base Plan.

¶A Practical Open-price Policy Adopted.

¶George A. Bass—Hydraulic-Press Brick Company's Chief—Elected President.

¶Salesmen's Competition for Four Best Papers on "Knocking" Inaugurated.

¶Enthusiastic Dealers' Meeting on Last Day of the Convention, Where Co-operation with Manufacturers in Their Plans for the Uplift of the Industry, Was Voiced.

A ONE HUNDRED PER CENT. organization of bona fide, legitimate face-brick manufacturers—is the new vision that has arisen before the members of the American Face Brick Association, following its annual meeting at French Lick, Ind., held on December 6th, 7th and 8th. If the next annual meeting sees as great a gain in membership as that just passed has witnessed, it will not be very long before this goal is realized, for a report of the association's activities during 1916 shows a seventy-six per cent. increase in the number of members over the preceding year.

But this healthy growth is all the more gratifying when it is realized that those who have in hand the guidance and direction of the association's affairs are men in the prime of life, filled with the spirit and vigor of youth, which is not prejudiced against doing things a new and better way.

COST ACCOUNTING AND OPEN PRICE PROMINENT

That the progressive nature of the association's pilots is redounding to its credit is shown in the forward steps which were taken at the annual meeting just past and which, it is predicted, will soon put the face-brick branch of the industry on a strong and sound basis. Two features stand forth prominently in the forward movement that is being inaugurated by the association. They are the adoption of a uniform cost finding policy and open price. A more detailed account of these matters will be given a little later on. Suffice it to say at this point that, if the association accomplished no more than the adoption of the above policies, the gathering at French Lick would have been amply justified.

HYDRAULIC'S CHIEF ELECTED PRESIDENT

No summary of the high lights of the meeting would be complete without mentioning the election of George A. Bass, president of the Hydraulic-Press Brick Company, St. Louis, Mo., to the presidency of the association. Mr. Bass is a well-known figure in the industry and needs no introduction. The face-brick makers are to be complimented on choosing a chief so eminently able to direct them during a year that will be filled with many vexatious and difficult problems.

The convention was highly successful from every standpoint. Practically ninety per cent. of the membership was present, to say nothing of some one hundred other manufacturers who are not at the present time members of the association. The sessions were opened to all, as was previously announced, excepting one executive meeting at which strictly family business was discussed.

OPENING SESSION

After disposing of the regular routine business characteristic of the opening of a convention, Paul B. Belden of the Belden Brick Company, Canton, Ohio, and president of the association during 1916, made his annual address.

Mr. Belden spoke briefly, predicting a wonderful success for the important movements which the association had gotten under way.

After he had finished, Secretary-treasurer R. D. T. Hollowell read his annual report covering the activities of the office in Pittsburgh, and in addition, a financial report in which it was shown that the treasury of the association was in good shape to take care of all immediate requirements.

J. M. ADAMS MAKES COST ANNOUNCEMENT

The first matter scheduled on the program for consideration at the opening session was the American Face Brick Association's cost program, to be announced by J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio, and chairman of the A. F. B. A. cost committee. Mr. Adams explained the cost policy to be pursued in the campaign for uniform cost finding in the face-brick industry as his committee saw it. It will be remembered that at a special meeting held in Cleveland, Ohio, on October 6th, a base plan was endorsed to be used in harmonizing the cost systems of all members of the association. In order to accomplish this end, Mr. Burr, head of the system department of a very large accounting firm, has been engaged and will visit the plants of all the members to bring about the desired result. In this way, it is not expected that any serious or expensive changes will be necessary in the accounting departments of any of the manufacturers whose names appear among the members of the association. The above mentioned expert has been employed at a very advantageous price per member and has visited about twenty-five per cent. of the plants, the good effects of his work already being evident.

There are Many Miles of Virgin Woodland, Unmarred by the Hand of Man, in the Vicinity of French Lick, Which Are Accessible Only on Horse-back

Mr. Adams then introduced W. J. Snyder of the Brazil (Ind.) Clay Company, who read a recent address delivered by Chairman Edward N. Hurley of the Federal Trade Commission, Washington, D. C., before a coal association, in which he strongly urged a closer relationship between government and industry and most strongly commended the policy of uniform cost accounting to all trade associations. At the conclusion of Mr. Snyder's reading, Mr. Adams resumed the floor and moved the adoption of the following as an amendment to the association's by-laws:

A Bridle Path Just Above the Pluto Spring, That Was Only One of the Many Scenic Attractions

ARTICLE V

Add as Section 3, the following: "It shall be the duty of members to promptly harmonize their cost finding systems with the Base Plan for cost finding adopted by the Association. To this end each member agrees to accept the services of an expert accountant to be chosen by the Association."

This amendment was unanimously adopted.

The opening session of the convention was then adjourned, after several amendments to the by-laws had been voted upon and passed.

SECOND SESSION

George A. Bass, president of the Hyraulic-Press Brick Company of St. Louis, Mo., opened the second session of the convention at ten o'clock on the morning of Thursday, December 7th, by reading a paper on "Recognition of Legitimate Dealers," which probably created more universal interest than any other one feature of the successful meeting.

OPEN PRICE PRESENTED BY PARKER FISKE

Upon the conclusion of the discussion which followed the reading of this paper by Mr. Bass, J. Parker B. Fiske, president of the Ridgway (Pa.) Brick Company, and chairman of the A. F. B. A. sales committee, gave a short resume of the evolution of the ideas of the association in the matter of exchanging bona fide price lists and the quoting of all deviations therefrom. The open-price policy, later adopted by the association, was read, paragraph by paragraph, and a full discussion of each was promoted and all questions answered. The policy was in the form of an amendment to the by-laws of the association and reads as follows:

ARTICLE IV
Open Price Policy

Section 1. Each member of the Association shall file with the secretary-treasurer not later than January 1st, 1917, a price list giving the current wholesale prices of all of his products offered for facing purposes, f.o.b. his yard, including terms of payment and discount, together with a full description of said products. If a member makes different prices, f.o.b. his yard, for deliveries in different localities, a separate price list for each such locality shall be filed. When the current price on any product is changed, written notice of such change shall be mailed within five days to the secretary-treasurer.

Section 2. Printed copies of the price lists so filed with the secretary-treasurer shall be distributed by him to all members of the association, and he shall promptly notify all members of changes in such price lists.

Section 3. Each member shall send to any other member, upon being requested so to do, reference samples of his products, each sample being labeled with the name of the manufacturer, the size of the brick, the kind of brick, quality of brick, color and shade number, in order that members may be accurately informed as to the products specified in the price lists. All carrying charges will be borne by consignee.

Section 4. No member shall be bound to adhere to the prices given in the lists filed with the secretary-treasurer, but if he make either a quotation or a sale at a price different from that specified in his list then on file with the secretary-treasurer, he shall, concurrently with said quotation or sale, notify the secretary-treasurer of such departure, and the secretary-treasurer shall immediately notify, by mail, each member of the association of the details of said quotation or sale.

In reporting deviations on specific jobs from price lists on file with the secretary-treasurer, members shall identify the operation in question with the following data:

1st: Location of building by state, city, street, and where possible, street number.

2nd: Style and kind of building.

3rd: Name of building, if any.

4th: Name of architect.

5th: Name of owner if there is no architect.

6th: Name of contractor in case of sale.

7th: Name of agent or dealer thru whom brick were sold or to whom quotation was made.

8th: Quality, size, color and shade number of brick sold or to whom quotation was made.

9th: Kind of brick, whether repressed, wire cut, rough texture, etc., giving trade mark if any.

10th: Quantity of brick.

11th: Price f.o.b. cars factory.

12th: Terms of payment, including discount and all other information necessary to clearly differentiate said sale from regular sales at list prices.

Dipping Water from the Pluto Spring

13th: Date of sale.

Section 5. If a member believes that another member has failed to report a sale or a quotation at a price different from the price then on file with the secretary-treasurer, he may so advise the secretary-treasurer in writing and may demand an investigation of the charge. His request must specify the particular job or jobs concerning which the charge is made. Each member agrees to permit his books, records and all other papers relating to any job under investigation to be examined by the secretary-treasurer and to furnish any information regarding such job to the secretary-treasurer or to the executive committee.

Where the Delegates Did Most of Their "Chinning" and "Bill" Fay "Pulled Off" His Hypnotic "Stunts"

Section 6. Where a member sells certain of his products to a wholesaler who in turn sells them to a retail distributer, it shall be the duty of the said member to obtain from the said wholesaler the prices which he is charging to the retail distributer, and the prices filed with the secretary by said member on such products shall be the prices which the said wholesaler charges to the said retail distributer.

It shall also be the duty of said member to keep himself duly advised of all deviations made by his wholesaler from said prices and to report the same to the secretary as provided for in Section 4 of this article.

A vote on this amendment was taken by roll call with the result that all, save one member, voted in its favor and this negative vote was qualified by exception to certain phraseology. It is expected that the practical working of this most advanced policy will result in a wonderful up-lift thruout the entire face-brick division of the industry.

"BRICK AND CLAY RECORD'S" ETHICS COMPETITION

Following the consideration of the open-price policy, the meeting was adjourned to reconvene at 10:00 a. m., Friday, December 8th. The first matter of business considered at the opening of the third session on Friday morning was the offer made by "Brick and Clay Record" to the association to provide substantial cash prizes in a competition for the best papers prepared on one of the A. F. B. A. ethics. The presentation of this proposition was to have been made by Roger M. Combs, vice-president and salesmanager of the Thomas Moulding Brick Company, Chicago, but owing to the fact that Mr. Combs was unable to attend, E. C. Howard of the Claycraft Brick Company, Columbus, Ohio, acted in his stead, reading a letter from Mr. Combs, sent to the secretary, concerning this matter, as follows:

ROGER COMBS' MESSAGE TO THE CONVENTION

"The sales department of the face-brick manufacturer is one of his most important branches, and one that as a rule receives the least attention as to its organization or personnel.

"Selling face-brick is different from any other commodity; it requires study. Therefore, the successful brick salesman is one educated in the general art of selling, as well as having a partial knowledge of architecture and engineering. He should be a man that can ingratiate himself with three distinct classes of people, namely, the architect, the contractor and the owner.

"He should be taught to sell his ware on the highest plane of salesmanship, consequently in accordance with the ethics of the American Face Brick Association.

"This fact has been thought of by men other than the brickmakers, and as a consequence, I attach hereto a most generous offer of 'Brick and Clay Record,' addressed to R. D. T. Hollowell, under date of November 13th, 1916, and reading as follows:

CONDITIONS OF THE CONTEST ARE OUTLINED

"'Dear Mr. Hollowell: Knowing the importance of the observance of sales ethics, not only in the face-brick industry but also in all branches of clayworking, and believing that a discussion of these ethics, particularly on the part of the salesmen themselves, would be productive of great good to all concerned, 'Brick and Clay Record' is willing to undertake a competition among face-brick salesmen and offer suitable prizes for the best papers written on any one but the first of the American Face Brick Association's code of ethics.'

ONE HUNDRED DOLLARS IN CASH PRIZES

"'We are willing to provide a first prize of $50; second, third and fourth prizes of $25, $15 and $10 respectively. We believe that the best way to handle this competition would be for us to bring the matter before the various face-brick salesmen direct and we would, therefore, request that all face-brick manufacturers and dealers furnish us with a list of their salesmen, whom we can circularize for this purpose.'

"'We believe that it will be necessary for us to get the support of the face-brick manufacturers to the extent of sending us the names of their salesmen, if this competition is to be a success. If we do not find that a sufficient number of manufacturers and dealers are willing to do this, it is very probable that we would not proceed further in the matter.'

ASSOCIATION ASKED TO APPOINT JUDGES

"'In the second place, we believe also that the association should be willing to undertake the appointing of a committee of judges from its own number to pass upon the merits of the papers offered in the competition. This would give weight and prestige to the whole proposition and would, we believe, have considerable influence among the salesmen. In other words, it would lift the matter from the realm of just a trade paper's scheme to a high class competition encouraged and backed by the manufacturers thru their association.'

"'We also believe that it will be necessary for us to get the co-operation of the manufacturers in this matter in order to proceed with the competition.'

"'In closing, we would ask that you place this matter promptly before the executive committee with a view toward having time allotted on your annual meeting program for the presentation of this matter.'

"'Hoping that the entire plan meets with the approval of the association, and assuring you that the only motive we have in conducting same is to promote a wider knowledge of good sales ethics among those who are daily pursuing the business of marketing face-brick, we beg to remain.'

OBJECT OF CONTEST IS SALESMEN'S EDUCATION

"Such a competition, endorsed by the American Face Brick Association would, in my mind, make brick salesmen 'take notice.' It would make them think enough about why it is really wise to observe the ethics of the association, particularly the fourth, which is the one I would recommend for discussion.

"Such a competition would no doubt go a long way toward educating the future managers of our sales departments. The prize winning paper will be eagerly looked forward to by the salesmen and by the manufacturers who will hope to have the first prize fall to their organization.

"To conduct such a competition properly, the Editor of 'Brick and Clay Record,' among other things, should be furnished a complete list of the names of all salesmen. Therefore, gentlemen, I submit the following resolution for your approval:

RESOLUTION PRESENTED COVERING THE CONTEST

"Resolved that the American Face Brick Association thank and accept from 'Brick and Clay Record' its offer of One Hundred Dollars ($100.00) to be distributed as set forth in prizes to brick salesmen for the best discussion on article four of the ethics of this association.

"Be it further resolved, that this association appoint a committee of three to act as judges in the competition.

"And be it further resolved, that all members of the association furnish the secretary with names and addresses of all their salesmen."

For the benefit of those who do not have a copy of the American Face Brick Association's ethics at hand, paragraph four, recommended by Mr. Combs as a suitable subject for the competition, reads as follows:

PARAGRAPH FOUR OF THE A. F. B. A. ETHICS

"That this Association condemns the practice of 'knocking' competitors' materials or casting aspersions that may be detrimental to the general face-brick business, and recommends that its members insist that their employes and selling connections refrain therefrom."

Mr. Howard in concluding the reading of Mr. Combs' communication, added his hearty endorsement to the plan, following which the chairman of the meeting—Paul B. Belden—called for a discussion of same. Among those who voiced their hearty approval and recommended that the association accept the offer made by "Brick and Clay Record" was Frank W. Butterworth, general manager of the Western Brick Company, Danville, Ill. Mr. Butterworth said that, inasmuch as he was among those who formulated the ethics of the association, he believed that he should have a voice in the matter before the meeting and stated that he could not say enough to express his pleasure at this opportunity which is offered

The Visitors Were So Busy Taking Part in the Initiation Ceremonies of the "Yellow Dogs" That Most of Them Overlooked the Fine Swimming Pool, Unless It Was Eb. Rodgers to educate the face-brick salesmen of the country in proper ethics.

THE OFFER IS UNANIMOUSLY ACCEPTED

The association unanimously approved of the proposition and registered its desire that the Face Brick Dealers' Association, which was holding a meeting in another room at the same hour, be allowed to join in with the manufacturers in receiving the benefits which will come from this competition.

DEALERS ASKED TO SHARE IN CONTEST

Accordingly, a representative of "Brick and Clay Record" was delegated by the meeting to present the matter before the Face Brick Dealers' Association, which, after a short discussion, expressed their approval and willingness to join hands with the manufacturers in making the competition a success.

NEW BASIS FOR ASSESSMENTS ADOPTED

The matter of the proper basis for assessments was then brought before the members of the American Face Brick Association, a recommendation which had been prepared by the executive committee being unanimously adopted. The executive committee acting as a nominating committee then presented candidates for officers and directors during 1917, the following being elected:

President, George A. Bass, president of the Hydraulic-Press Brick Company, St. Louis; first vice-president, S. C. Martin of the Kittanning Brick and Fire Clay Company, Pittsburgh, Pa.; second vice-president, J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio. Directors: B. W. Ballou, secretary and manager of the Kansas Buff Brick and Manufacturing Company, Buffville, Kan.; Paul B. Belden, general manager of the Belden Brick Company, Canton, Ohio; T. P. Cuthbert, general manager of the Fallston Fire Clay Company, Pittsburgh, Pa.; J. Parker B. Fiske, president of the Ridgway Brick Company, Ridgway, Pa., and Leon Goodman of the Des Moines Clay Company, Des Moines, Iowa. These directors were elected to take the place of those whose terms expired with the French Lick meeting.

DIRECTORS HOLD MEETING

A meeting of the board of directors held immediately following the adjournment of the regular session on Friday morning, resulted in the re-election of R. D. T. Hollowell as secretary-treasurer of the association for 1917. A budget for the coming year had been prepared and this, together with the collection of sufficient funds for the operation of the association, was authorized.

In addition to the regular session an account of which has been given, round table conferences were held a 2:30 o'clock on the afternoons of Thursday and Friday, December 7th and 8th.

THE DEALERS' MEETING

The Face Brick Dealers' Association held one meeting during the convention, this being at 10 a. m. on Friday, December 8th. An unusually large number attended this meeting, more than seventy-five being present, which is very good considering the fact that the association has a membership numbering somewhere in the neighborhood of fifty-six.

General business occupied most of the discussion at this meeting, there being no set program, and those who attended were unanimous in their opinion that it was one of the most significant meetings ever held by the association.

F. Lawson Moores, past president of the association, offered two resolutions for the consideration of the dealers present, the sense of which was as follows:

No. 1. That the association recommend to its members they refrain from accepting any agencies from factories already represented in their territory, until after they have taken the matter up with the agent then in effect and found that the change was satisfactory to him.

No. 2. That it be the sense of this meeting that the dealers are in entire accord with the efforts of the manufacturers' association to better the conditions of the business and that the dealers are willing and anxious to co-operate to this end in all ways possible. These resolutions, together with several other minor ones, were passed unanimously by the association.

A. S. Reid of Newark, N. J., who served as president for the association during 1916, was unanimously re-elected while Harold W. Holmes, president of the Colonial Brick Company, Detroit, Mich., was elected to succeed "Bob" Queisser, who is at present with the Ohio militia on the Mexican border.

The SOCIAL SIDE *of the* CONVENTION

"ANCIENT ORDER OF YELLOW DOGS"

ORGANIZED for the purpose of spreading fun and good fellowship among those members of the face-brick fraternity in both the dealers' and manufacturers' divisions who had gathered at French Lick to discuss the weighty problems that are confronting the industry today, the "Ancient Order of Yellow Dogs," a secret organization, was brought into being, and during the few short days of the convention, enjoyed a truly miraculous growth. Rising from a "Kennel" of but a few "Dogs," whose homes and places of business were placed on the register as being in Cincinnati, and whose chief affiliations of a fraternal character were those that bound them to the energetic and widely known Cincinnati Brick Club, the "Supreme Kennel," soon numbered amongst its members fully eighty or ninety per cent. of the delegates present.

INITIATION COMMITTEE OF "YELLOW DOGS" ACTIVE

From the first day of the big get-together, the interims between the sessions, and the evening recesses, were taken up with the work of introducing and initiating new members into the "Supreme Kennel." At the last, few remained to be uncovered by the "Yellow Dogs" on duty scenting out prospective members to be put thru the initiatory work, and it may be safely said that, were not the windows so numerous and easily opened in the rooms where prospects were placed prior to their admission into the "Order," even a smaller percentage of prospective material would have made its escape.

"DOGS" WAVE TAILS IN SIGN OF RECOGNITION

Possibly no other one feature lent as much real enjoyment to the otherwise solemn gathering as did the "Ancient Order of Yellow Dogs." The mysterious crooking of the upraised finger, typifying the waving of a dog's tail, never failed to bring a doleful ululation and a series of petulant whistles from the brother "Yellow Dogs" present, despite the formality of the occasion or the depth of the discussion—the only place where this rather energetic sign of recognition was out of order being in the business sessions of the convention.

Even the comparatively short account of the activities of this newly opened "Kennel" given here would be incomplete without the names of those older "Dogs" who fathered its growth and administered the pledges of allegiance and good fellowship to which the applicant for membership must swear in the presence of other "Dogs" who had already received their initiation and title. The most supreme, exalted and worshipful officers of the "Yellow Dogs" were as follows:

"Grand Chief and Worshipful Bow-wow"—Arthur W. Riggs.

"Most Exalted Examiner of Dogs"—Ed. J. Pick.

"Supreme Christening Potentate"—Ed. Grand.

"Supreme Guard of the Kennel and Introducer of Dogs"—Don Wever.

"YELLOW DOGS" TAKE DEPARTURE

It is unlikely that those who left the French Lick meeting will soon forget the immense amount of fun and the strength of the friendships built up thru the operations of this humorous society. "Yellow Dogs," it is believed, will have a difficult time to restrain the hand from raising high to crook the finger a certain (secret) number of times in recognition of other "Yellow Dogs," and should a finger become uncontrollable, the deep growl, the frolicing whistle, and the hearty after-handshake that characterized the introduction of "Yellow Dogs" at the birth of the big "Order" will be again enacted.

TICKLERS

Did you bump up against any of those energetic members of the youngest trio holding down managerial positions in the clay products industry, all graduates from the University of Illinois? A. W. Kimbell, secretary of the Kimbell-Hill Brick Company, Chicago; John J. McCoy, vice-president and treasurer of the Wisconsin Face and Fire Brick Company, Milwaukee, and C. E. ("Bud") Poston, manager of the big Poston plant at Attica, Ind., are the names of the parties. No, you couldn't very easily forget them—a meeting was enough to explain why they've got their jobs.

Jim Moressy, new salesmanager of the Cleveland Builders' Supply Company, received a most energetic introduction to the brick fraternity at his initial conventional appearance. Jim's generosity was undoubted. Besides paying the admission of several friends into the dog-and-badger fight, afterwards shared by Schario and Gifford, he also made himself useful in materially assisting in the initiation of himself into the "Ancient Order of Yellow Dogs."

That energetic, highly charged "live wire," who recently tied himself to the Wisconsin Lime and Cement Company of Chicago and bears the name of William H. Gifford, actually took enough time off to play his first game of golf. "Giff" and his partner scored a victory over Varney and Reagan by playing a tie up to the sixteenth hole and doing the last two in nothing, this, despite the fact that the golfers' regalia was conspicuously absent.

As a dispenser of liquids, Ed. Grand of the Purcell-Grand Company, Cincinnati, Ohio, active (very active) "Supreme Christening Potentate of the Ancient Order of Yellow Dogs," has set a mark that will take a cloudburst to equal. Ed. didn't leave his associate, Walter Purcell, very far behind either when it came to sprinkling the aqua.

As a professional performer, orator and warbler, C. F. Mattes, who manages the sales of the Decatur (Ill.) Brick Manufacturing Company, made a hit. Even under the hypnotic spell induced by "Bill" Fay of the Cuyahoga Builders Supply Company, Cleveland, Mr. Mattes showed his staunch support of brick construction.

Art. Riggs—"Most Worshipful Bow-wow" of the "A. O. of Y. D."—brought to the convention all the energy and "pep" that has placed the new Brick Sales Company of Cincinnati, which he and Don Wever started a year or so ago, on the map. Don is by no means lacking in the qualities that make a "live wire," either.

Buying three-dollar ties for Cincinnati friends and missing trains are favorite diversions of one E. J. Schario—a bright light in the Canton gang and salesmanager of the Keim Brick and Tile Company. Ed. didn't care where he was going; he didn't give a "gol durn" if the Cincinnati coach was sidetracked three stations back—he wanted to ride.

"Archie" Reid, who hails from Newark, N. J., re-elected president of the American Face Brick Dealers' Association, caused a rumpus at one of the meetings by passing to the boys a box of two-bit smokes—after Ed. Grand had assumed the alias of "Archie" Reid and ordered them charged to that account.

George Bilque—B-i-l-q-u-e—of the Kloninger crew, Pittsburgh, seemed to be a regular A-1 matinee idol judging from the steady stream of visitors to his room. It is said that the cause of the commotion was later discovered in the form of a nearly-emptied article which bore a stamp on the bottom—"95 proof." Nuf sed.

W. D. Richardson was much in evidence at the convention sessions and reported a most successful season having been completed by the Hebron (N. Dak.) Brick and Tile Company. He expects to start tunneling thru the ice and snow to get to the clay pit in the near future in preparation for the spring's activity.

"Mac" Everhard from Massilon, Ohio, early one morn at Brown's gave a most entrancing exhibition of light-footed dancing for the benefit of the fellow members gathered around. This was immediately after "Mac" required assistance in detecting olives and devastating an onion sandwich.

The folks are still trying to guess whether "Bill" Fay pulled a fake in that hypnotical stunt, or if the fake was in the explanation of how it was faked. Figure it out, but even after being shown how it was done, many professed to believe that the real thing was there, with a fake label.

Current reports have it that Art. Kimbell of the Chicago crew spent most of his time in the dining room using the normal period to decide upon that which he was to devour and spending the interims between that and the next meal doing away with same.

It is rumored that C. R. Corning of St. Paul was obliged to leave before the convention closed because of the damaging effect the low ceilings in the lobby of the hotel had upon his new sky piece. Mr. Corning's lid is somewhat farther away from the floor than that of most persons.

Fred Solms, Colonial Brick Company, Detroit, inflicted severe injuries upon John Stoner of Cincinnati when he broke three of the latter's ribs by nudging him during the sessions of the dealers' association, in prompting him to suggest Detroit as the next convention center.

The biggest "Yellow Dog" initiated into the "Order" was E. J. Burke, a veteran in the ranks of the clayworkers who hailed from Rochester, N. Y., representing the American Clay and Cement Corporation. Glad to welcome you back, Burke.

Lack of sleep caused Martin Kimbell, who blew in from Chicago, to lose a small percentage of his youthful energy before the big gathering had closed. Golf thruout the lighted hours and the chips thruout the darker hours took much time away from the ordinary period of revivification.

Mention "Brown" to Joe Shaw of the F. B. Stevens Company, Detroit, and note the queer effect. Even brown potatoes on the menu caused a decided drop in the devouring capacity of Joe at the meals, and it is said, that he took a decidedly brown taste away with him.

Frank L. Schaefer, that energetic ball of fire from Detroit, gave a yank and—oh, well, you know all about it if you attended that notorious dog-and-badger fight of which he was referee. Did he pay his two-bits?

Jimmy Lyons and Martin Kimbell, members of the Chicago face brick organization, together with Frank L. Schaefer of Detroit, kept the chips bouncing on the way down until early morn—that is, either they or the Monon did.

Did you see long Sam Matters from the Standard Salt and Cement Company, Duluth, who blew in with Clarence Nixon? The latter's head is just a trifle nearer his shoes than Sam's.

Geo. Doerke was the official representative of the Consolidated Company, the "babe" of the Chicago Face Brick Association. Mr. Doerk's visage became well known at Brown's before the three days were over.

C. E. Jewett of the Hocking Valley Fire Clay Company, Nelsonville, notified friends that he would be unable to attend the convention owing to the fact that that great bird —the stork—is about to arrive at his domicile.

The wiles and gentle hypnotic influence of that inimitable performer, "Bill" Fay, failed to move the adamant John H. Donahue of the Corning-Donahue Brick Company, St. Paul. Hist, Watson, a clue. Was it a fake?

Unusual consideration was shown in the initiation of Paul Belden by the officiating dignitaries of the "Ancient Order of the Yellow Dogs." It is rumored that the "Christening Bow-wow" handled Paul's lines.

The stalward physique of E. C. Howard, Claycraft Brick Company, clothed in a most impressing golfing outfit, caused him to be mistaken several times for the big theatrical producer, Brady, who shared the hotel with the brick clan.

W. H. Hoagland, Claycraft, Columbus, stated many times that it was in the air. We don't know altogether what he means (Pluto?) but we guess it was all right.

Alliance fame and prestige were well upheld by F. A. Hoiles and O. G. Knoske of the Alliance (Ohio) Brick Company.

He dropped a nickel in the slot machine and "bingo"—Eb. Rodgers had to hire an express wagon to carry away the pot that fell.

Who said seventy-seven? G'wan, Harry Podolsky only cleaned up thirty-seven shekels at the Monte Carlo establishment. Brown's has at last met its unbeatable adversary.

Ed. J. Pick—a member of the Moores-Cooney outfit at Cincinnati — otherwise known as that "dirty little 'Yellow Dog.'"

George Anderson of Lansing, Mich., *was present* at the convention.

* * *

Cincinnati Brick Club Entertains

The Cincinnati (Ohio) Brick Club seized the opportunity afforded by the presence in that city of a number of brick men en route to the face-brick convention at French Lick, Ind., to offer a sample of Queen City entertainment. The evening before the convention the club gathered together some thirty delegates who were in the city on the way to the convention, and tendered them a dinner at the Hotel Gibson, the beautiful Cascade Room being used for the purpose. A box party followed at one of the theaters, the whole affair being enjoyed immensely by the visitors. Similar festivities were held in Cincinnati on the return trip from the convention, a score or more of those who had attended, stopping over on Saturday, and being entertained by the Cincinnatians.

* * *

"Bob" Mitchell Is At It Again

"He was a poet and didn't know it," might well apply to Robert C. Mitchell, salesmanager of the Barkwill-Farr Company, Cleveland, for now that customers have had their mid-winter needs for common-brick supplied, and since worrying about it won't improve the coal or car situation, the poet laureate of the B-F institution takes his pen in hand and breaks forth into rhyme, thus:

OUR OFFICE YELL

Alla, li nook, ki nisk, ki nack,
Built of frame, a fire trap;
Family dead, you know the rest—
Build with brick, BUY FARR THE BEST.

"Bob" guarantees the first line of this creation to be real Hawaiian, meaning "Build with Brick." And the entire office crowd believes it. That is where the joke comes in.

COMING CONVENTIONS

Dec. 27th and 28th—New Jersey Clayworkers' Association, at Rutgers College, New Brunswick.

Jan. 15th, 16th and 17th—Illinois Clay Manufacturers' Association, at Champaign, Ill. Headquarters Beardsley Hotel.

Jan. 15th to 19th—Iowa Clay Products Manufacturers' Association, at the Iowa State College, Ames.

Jan. 16th, 17th and 18th—Nebraska Brick and Tile Association, at University of Nebraska, Lincoln.

Jan. 18th and 19th—Northwestern Clay Association, at Minneapolis, Minn. Headquarters Hotel West.

Jan. 23rd, 24th and 25th—Canadian National Clay Products Association, Hamilton, Ont. Headquarters Royal Connaught Hotel.

Jan. 29th and 30th—National Terra Cotta Society, at New Orleans, La. Headquarters Grunewald Hotel.

Feb. 1st and 2nd—Wisconsin Clay Manufacturers' Association, at Milwaukee, Wis. Headquarters Republican House.

March 5th to 10th—National Brick Manufacturers' Association, at New York, N. Y. Headquarters McAlpin Hotel.

TESTING CLAY PROPERTIES

Valuable Advice on a Subject Too Often Lightly Regarded, Which May Be the Means of Preserving Your Fortune at Some Future Date

By A. F. Greaves-Walker

TO MANY CLAYWORKERS the above subject will seem so elementary as to be almost, if not quite, above notice. That many prospective and actual clay plant owners, to say nothing of the army of farmers and promoters who have dabbled in clay, have so regarded the subject, is very evident from the vast number of "dead" clay products factories which dot the country.

The outsider is not to be greatly blamed for overlooking or utterly ignoring the necessity for a thoro testing of a property but, for the clayworker, there is absolutely no excuse, for he, of all others, knows the treacherous nature of his raw material. He has in many cases, however, handled the matter as he has handled his plant design, equipment and kiln construction—*with his eyes and ears shut.*

In looking about, it is really surprising to note the immense waste of money due directly to the erection of plants without first making the proper tests of the raw material it was proposed to use. A few instances will be of interest.

SPENT $2,500,000 ON STRENGTH OF SURFACE SAMPLES

A clay products company which had been in successful operation for twenty years found it advisable to sell its plant site and clay pit because of its value as real estate thru the growth of the adjacent city. With well on to a half million dollars in cash to its credit it sought another site in the vicinity. The manager and superintendent selected a promising piece of land within ten miles of the old plant which appeared to them to be in the same geological formation. A few *surface* samples were taken and made up at the old plant and these samples appeared to be all right. *Without any further tests, a quarter of a million dollars was spent in erecting a factory.*

As soon as the plant commenced operations it was found that the entire property was covered with a blanket of from two to six feet of the clay which had been tested, while beneath this was an entirely different clay. This latter deposit, while workable, would not dry safely under any circumstances.

The company has been experimenting for three or four years in an endeavor to use the material and, in so doing has used up its cash balance, mortgaged the plant and, worst of all, has lost a splendid business to its competitors.

The testing of this property—which was clay, not shale—would have been extremely simple. A hand auger would have divulged the useless material in the first hole sunk. Further than this, an appeal to the officials of the geology department for information would have warned them off, for the geologists were thoroly familiar with the characteristics of this clay bed.

BUILT NEW PLANT WITHOUT ANY TEST WHATEVER

Another instance worthy of mention is that of a clayworker with years of experience who sold his plant and decided to erect another on a piece of property he had retained about a quarter of a mile from his old plant. *Without any tests whatever,* the plant was laid out and erected. The idea was to get the raw material from a hill at the rear of the factory, but it was soon found that this entire hill was covered with a glacial drift which was literally full of lime pebbles. Further tests showed that the plant itself had been erected upon the very best of the deposit and that that part of the flat land which had no buildings upon it had apparently been cut thru by an immense river or glacier and then filled with quick-sand. The result to the clayworker in question was that he lost his interest in the company and is apparently out of the game for all time.

PROFITED NOTHING FROM COSTLY EXPERIENCE

A third instance is rather interesting because, in this case, the company involved owns a number of plants and had previously lost one soon after purchase thru the absolute disappearance of the shale deposit, this being replaced by a useless, stony clay. It would be expected that one such experience would make a company move cautiously, but this was not the case.

At one of the plants the shale became so hard as to be almost unworkable. It was therefore decided to move to another hill close by and there open a new pit. An expensive incline and tramway were installed and the pit opened. The first shale taken from the new opening was so high in lime as to be useless. After working thru a pretty thick deposit of this class of material, the shale become as hard as that in the old pit. The consequence was that after a large expenditure of money, the demoralization of a good organization and quite a long shutdown, the new opening was abandoned.

PECULIAR DEPOSIT FOOLED FIRE-BRICK CONCERN

It is a pretty well-known fact among ceramists and geologists that flint fire-clay occurs in lens-shaped deposits and that some of these, especially in the West, are quite small and irregular in distribution. Upon the discovery of one of these deposits, a company was organized to build a refractories manufacturing plant. As it happened, the original deposit only contained a few hundred tons and altho the property was thoroly searched for [illegible]ne was found of sufficient refractorines[illegible]nts. The plant was finally equipped [illegible] ucts, *but not until after the o[illegible] money they put into it.*

"BIG MONEY" MA[illegible]

The promotions which h[illegible] not properly testing the p[illegible] of these instances, which w[illegible] the fact that the project w[illegible] the country's financial cen[illegible]

The plant was complete[illegible] was then found that the w[illegible]

Some of the best expert advice in the country was obtained, without results. Finally a railroad twenty-five miles long was built to a workable deposit. but it was soon found that the cost barred the products of the factory from the market. The plant was soon abandoned and today the investors undoubtedly class clay plants with salted mines and "wild cats" of all descriptions.

Enough of such cases could be recounted to fill a book, but the above will serve to show in a small measure how this very important problem is so often approached, even by those with years of experience behind them. It is small wonder, under these conditions, that the bankers of the country look upon the clayworking industry as one of the greatest risks with which they have to deal.

In the selection of a clay property many items must be considered. Among these is the topography, geology of the district, ware to be manufactured, location with regard to market, shipping facilities and water supply. These items bear a close relation to each other and must be considered as a whole, rather than separately.

TOPOGRAPHY

It is generally recognized that it is better to win material from a hillside than to have to go below grade for it. In selecting a hillside in which to open a clay or shale bank there is the great advantage of using gravity in moving the mined material to the factory. There is also the advantage of drainage and big working faces which makes for economical shooting or steam shovel operations. These items count heavily in the cost, especially where sharp competition is to be met. It would not be wise for a company to select a site where it was necessary to open a pit below grade or a room and entry mine, if its nearby competitors had a hillside bank with its accompanying lower costs, unless there were other conditions directly connected with the mining operation which counter-balanced the first mentioned advantage. More modern e[illegible]d factory could not be relied upon to off[illegible] favor, for the competitor could [illegible] and still maintain the lead.

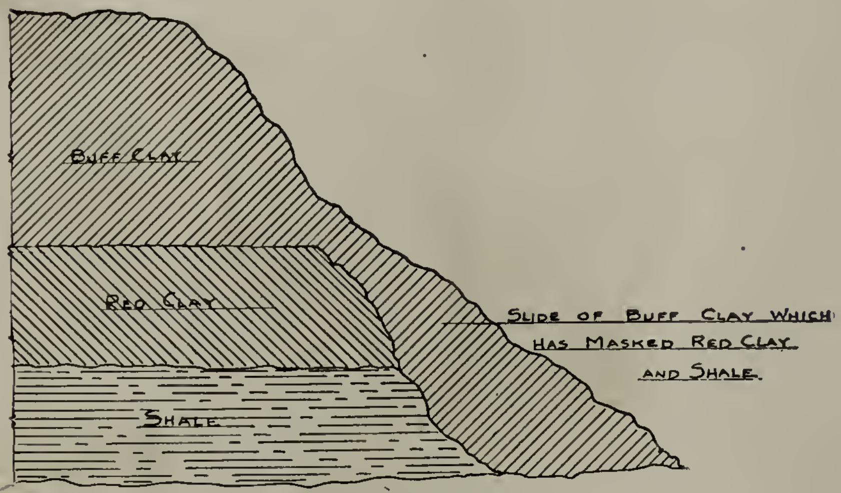


Fig. 2. Section of Hill Showing How Landslide Changes Surface Indications

[illegible] a site is selected which puts the [illegible]ing with its competitors or better [illegible] there can be no fear from this [illegible]ement.

[illegible]LOGY

[illegible] the district containing the de[illegible]. It loses some of its impor[illegible] consideration has been thoroly [illegible] still important. In the fire[illegible] districts where the stratifica[illegible] it is an item which must not

A company may test out an area that looks in the beginning as tho it were inexhaustible only to find out, in later years, that it must open up on other parts of the property. In some cases where this has been the case similar material has not been found or only by going great distances.

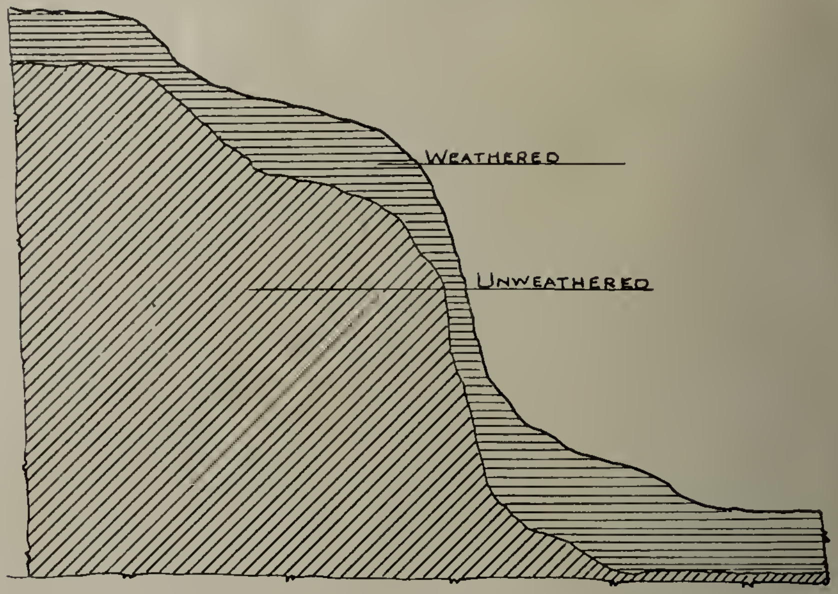


Fig. 1. Section Thru Hill Showing Weathered Material on the Surface

Most states now have a department of geology which is pretty thoroly versed in the formations within its boundaries and, as such information is for the public, there is no reason why a clayworker or prospective clayworker should not benefit by it.

WARE TO BE MANUFACTURED

It is, of course, primarily important that a company should know that the raw material on the property being considered is suited to the ware to be manufactured. If refractories are to be made, it is necessary to know that there is a sufficient quantity of clay in the deposit which comes up to a certain standard of refractoriness. If face-brick is the object, the materials must develop the desired colors. If hollow-ware or pavers are required, the material must be suitable, *and there must be enough of it.* Even experts cannot determine these things from a small hand sample or a barrel of clay taken from the surface at some point on the property.

MARKET

In selecting a property the item of location in regard to market must be kept in mind. No matter how good the raw material may be, it has no value unless it can be delivered to the market either in its raw or finished state at a profit. Many plants have been built only to fail because this could not be done. The vast majority of factories in the structural products end of the business must have a local market which will absorb the greater percentage of their product. In only isolated cases is this condition reversed. The proximity of a market is, therefore, an important consideration.

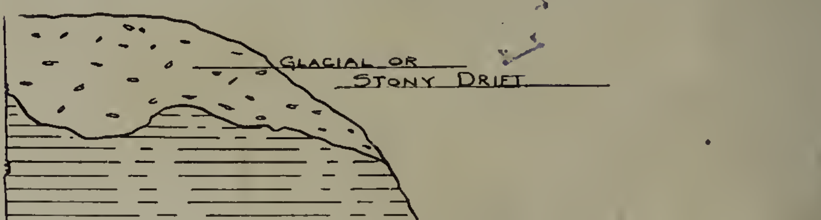


Fig. 3. Section of Hill Showing Overburden or Drift

In a few localities, especially in the far West, the plant is located at the market and the raw material shipped to it. Such a condition exists because the freight rates are lower on raw material than on finished products and because all of the plants supplying the market follow the same method.

SHIPPING FACILITIES

A clay products plant must have good shipping facilities, that is, it must have good railroad service. At the present date this is not a difficulty that is often encountered. Sometimes a plant will be located at such a distance from a railroad that a large expenditure is necessary to put in a spur. Sometimes from ten to thirty thousand dollars is spent in this way, the interest and maintainence necessarily being charged against the output. In such cases a great saving could often be made by locating the plant near the railroad and bringing the raw material to it on an industrial railroad, or better still, locating a deposit of the same raw material nearer the railroad, as often can be done if an intelligent search is made.

Whenever possible, it is best to locate within reach of two competing railroads for while rates are generally fixed, the car supply will always be much better and the troublesome matter of switching charges at terminals can often be avoided thru the competitors absorbing them.

WATER SUPPLY

Plants do not often have to worry about a water supply, but failure to look into this matter may lead to much trouble especially in some parts of the country. A few years ago a large factory was erected on high ground and about ten miles from the nearest stream. Water for construction purposes was obtained from a driven well, the water from which was salty. No thot was given to this water until operations commenced when it was found to be absolutely unfit for either boiler or tempering purposes. Months were consumed in an effort to locate purer water, but to no avail. There remained nothing to do but put in expensive condensers or pipe to the stream ten miles away. Trouble arose among the stockholders over this condition, with the result that *the plant stood idle for years until finally it was sold for about twenty-five per cent. of its cost.*

Having taken into account all of the above considerations, the matter of testing the property to determine the amount and value of the material to be used must be tackled. To dig up a few surface samples and send them to a clay machinery company or testing laboratory is utterly useless. Surface indications, as a rule, mean nothing so far as shales and clays are concerned.

WHY SYSTEMATIC SAMPLING IS NECESSARY

In the first place weathering will so change the characteristics of a shale or clay as to make it entirely different from the unweathered material below. Years of exposure to the elements will turn a hard, rocky shale into a soft plastic material which will show splendid working qualities, whereas the original unweathered material will resist every effort to turn it into ware. Also a buff burning clay or shale may weather into a red burning material, sometimes to a depth of six or eight feet. Weathering often leaches out of the surface material objectionable constituents which would otherwise prohibit its use. On the whole it might safely be said that the testing of weathered surface samples has caused more trouble and losses than any other item connected with the selection of a shale or clay deposit.

Land slides on hill sides have caused much trouble where surface samples have been taken. These slides sometimes extend over a large area and cover the material under them like a blanket. In some cases a large portion of a hilltop will have broken away and slid to the bottom. Beneath it the material may be useless. Under such conditions surface testing would show a far greater quantity of material available than is actually the case. It is on an occasion of this kind that a knowledge of the geology of the district becomes valuable, for with it, it would be readily recognized that something was out of place.

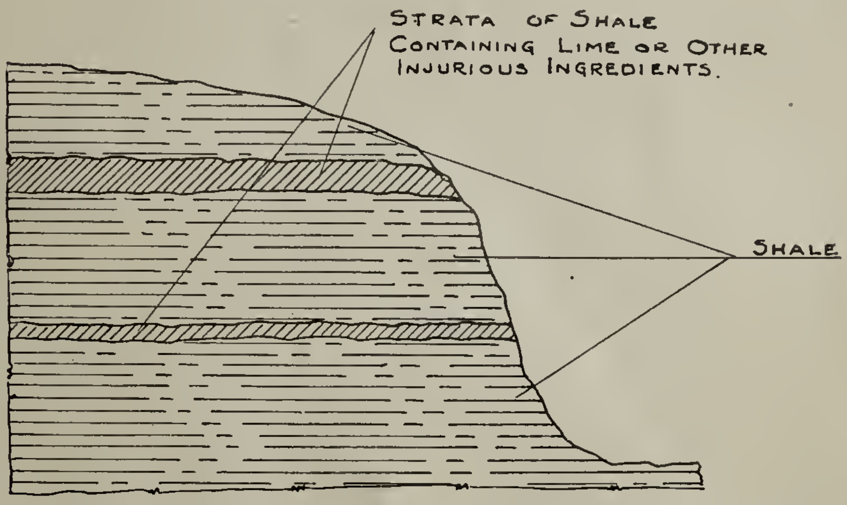

Strata of Shale Containing Lime or Other Injurious Ingredients.
Shale

Fig. 4. Section of Hill Containing Seams of Worthless or Injurious Material

In the glacial areas surface indications count for little or nothing. Both hills and valleys are more often than not covered with a worthless drift. Only thoro drilling will disclose the material beneath, as it will also determine whether the overburden is too heavy to make the locating of a plant profitable.

Glacial, river and swamp deposits are so changeable as to make it absolutely unsafe to accept surface indications. The very nature of these deposits indicate that they will contain strata or pockets of sand and gravel which may make the entire bed worthless. In the accompanying sketches, Figs. 1 to 5, some of the above described conditions are illustrated.

(*To be Continued.*)

GOTHAM CLOSES IMMENSE BUILDING YEAR

As the last days of a great month of one of the greatest years, in some respects probably the greatest, in the building business of the world's largest city pass, New Yorkers are doing what as a rule New Yorkers seldom have time to do—taking time for reflection, for a calm contemplation of that which has been and for a glance into the future as to that which may be. Even a New

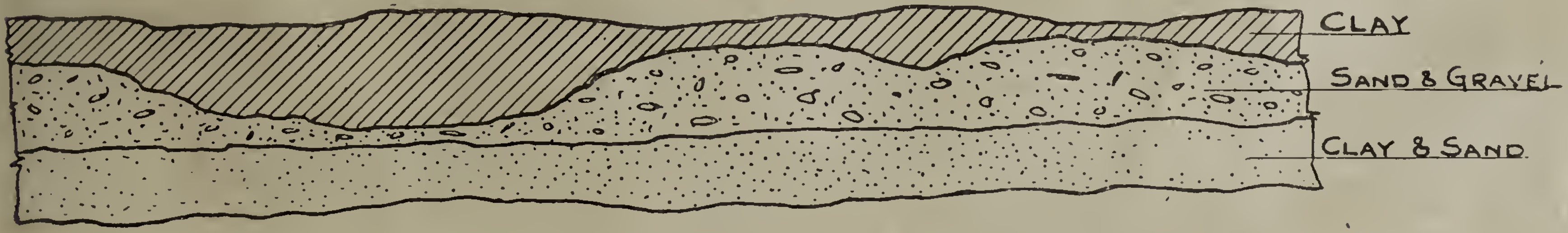


Fig. 5. River Deposit Showing Varying Thickness of Strata

Yorker is astonished at the records that have been written down in 1916 history. Viewed from any angle the result is the same, and the best and the shortest description of all conditions surrounding the building business is that expressed by the one word—great.

HANDICAPS FAIL TO STEM BUILDING PROSPERITY

Handicap upon handicap has beset the building trades at every turn but ever onward has gone the procession. Mounting prices for most everything that goes into a building from brick to shingles has failed absolutely to stem the rising tide. Not only have rising prices failed to retard 1916 business, but be it known here and now in the last days of 1916 that buyers have been busy and are still busy buying, not for the next week, or next month, but for months ahead, six months ahead, in many instances, and in some cases even into the third quarter of 1917.

The calamity howler and the pessimist are not stopping in old New York this year. This is no place for them. Business is all business, and it is "rushing." Nobody has time for worry and so nobody worries. Even while reflecting on past, present and future, and with the holiday season almost upon us, plan filings for the week of December 2nd to December 8th for Manhattan borough figure $868,250 as against $803,000 for the corresponding week of 1915, which brings the grand total of filings from January 1st to December 8th for Manhattan borough to $109,983,545 for new buildings and $18,005,671 for alterations. In 1915 for a corresponding period the filings for new buildings amounted to $59,030,088 and for alterations $12,868,094.

BROOKLYN GAIN OFFSETS LOSS IN BRONX

In the Bronx things were different. For part of the year building almost stood still so that the figures for new buildings since January 1st and until December 7th totaled $16,387,682, as against $26,529,900 for the corresponding period in 1915. Alterations in 1916 reached $1,323,105 as against $859,020 in 1915. In Brooklyn during the week of December 7th, the plan filings reached $673,700, bringing the total since the first of the year up to $40,448,120 as against $36,688,090 for a like period in 1915. Alterations for the week of December 7th totaled $111,400 as against $57,775 in 1915. Total alterations since the first of the year aggregate $5,200,540 as against $3,903,855 for the corresponding period of 1915. In Queens the plan filings to December 7th from the first of the year are crowding $20,000,000, which is about what it was for the corresponding period of a year ago. Richmond is running $1,635,487 for this year which is considered lower than 1915.

DWELLING CONSTRUCTION REACHES IMMENSE TOTAL

Some people in the rest of these United States may have gotten the impression somehow and somewhere, that New York long since passed the private dwelling stage inasmuch as there are some three millions five hundred thousand odd flat dwellers in the big town. For the benefit of such folk, it is stated that, during the past year builders have put up 11,650 dwellings, most of them brick too, for 115,000 persons at a cost of $32,610,000. This covers the greater city with the suburbs of Westchester, Nassau, Suffolk and New Jersey. Manhattan borough has put up thirty-seven private residences—more than for several years, and three times as many as in 1915—with a total cost of $2,650,000 and an average of $71,081 for each house. Activity has centered in upper Millionaires Row and its side streets to Park avenue. Queens has passed Brooklyn in the volume of small house construction having 3,310 new houses costing $9,263,000. Brooklyn had 2,330 private dwellings costing $8,407,500. Outside Brooklyn and Long Island City, the Long Island commuting zone has had 7,500 new private dwellings erected. New Jersey, in the New York commuting zone, has outdone its best years with 3,845 new dwellings costing $9,675,000.

1916 BUILDING LOANS SET NEW RECORD

Building loans in the metropolitan district so far in 1915 have made a record total of $85,000,000. Most of the contracts carry six per cent. interest. This huge sum has gone mostly into flats or dwellings. Manhattan building loans have reached nearly $30,000,000. The largest single lender has been the Metropolitan Life Insurance Company with $6,500,000. Chicago money amounting to $3,395,000, advanced by S. W. Straus and Company, is a notable feature of the New York building loan market.

During the week just passed, increased activity has been noticed in all branches of the building industry. Standing head and shoulders above many other interesting features. is the all powerful one of a general advancement in the prices of nearly all classes of building materials with no let-up in the demand. Instead of a let-up there is continued forward buying of building materials covering the first half of 1917 and extending into the third quarter. Almost unprecedented conditions are observed in architects' and contractors' offices. Buildings that have been in the contemplation stage for many months and that have been in sketch form, are rapidly being turned into working plans and all this means big business for 1917 and that right early.

AGGREGATE OF MANY STATES SHOWS BIG GAIN

According to comparative statistics of building and engineering operations in New England, New York, New Jersey, Pennsylvania, Maryland, Delaware, District of Columbia, Virginia, Ohio, West Virginia, Illinois, Indiana, Iowa, Wisconsin, Michigan, Minnesota, North and South Dakota, Missouri and Eastern Kansas, compiled by the F. W. Dodge Company, contracts awarded to December 1st total $1,243,998,397 against $857,190,100 in 1915 and $677,920,300 in 1914.

* * *

"We Never Sleep," Says Fire-Brick Concern

Thru an error, a misleading statement concerning the A. P. Green Fire Brick Company of Mexico, Mo., was published in the December 5th issue of "Brick and Clay Record," under "In the Wake of the News" department, stating that the plant of that company "is now working only on a part time schedule, altho it has a number of orders on hand. The idle periods are being used to make extensive additions to the plant which consist chiefly of installing new machinery and constructing additional buildings."

We have been advised by officials of the A. P. Green Fire Brick Company that instead of working on a part-time schedule, their plant is running day and night to supply the heavy demand that now exists for its product. While it is true that extensive improvements and additions are at present being made at the plant designed to greatly enlarge its capacity and facilitate production, yet there is no time whatsoever being taken off—every piece of ware that the plant can possibly turn out is being produced. In contradiction of the above item the company states that never before has it been working to the schedule being followed at present.

PAVING BRICK INSTITUTE *to investigate* COSTS

FRED R. KANENGEISER
Re-elected President, Institute of Paving Brick Manufacturers

Action Taken at Enthusiastic Annual Meeting in "Sixth City" Proves a Big Step Toward Adoption of Uniform Cost Keeping in Paving-brick Plants

WITH A HISTORY behind it of approximately eighteen months—which makes it the "baby" association in the industry—the Institute of Paving Brick Manufacturers has set a pace that is bringing it well in the front ranks of Clay's organizations that are doing something.

MACHINERY PUT IN MOTION FOR COST SYSTEM

While most of us have been talking about uniform cost accounting, this energetic little body has been quietly working thru a committee headed by C. C. Blair, general manager of the Bessemer (Pa.) Limestone Company, and consisting of O. W. Renkert of the Metropolitan Paving Brick Company, Spencer M. Duty of the Medal Paving Brick Company, W. H. Terwilliger of the Purington Paving Brick Company and J. Brennen of the Barr Clay Company. This committee made a report at the annual meeting held in Cleveland, Ohio, on December 5th and 6th, which was to the effect that it had received and O. K.'d the proposal of a certain Cleveland cost accountant who, if it was the wish of the Institute, would make a preliminary survey of the paving-brick branch of the industry, visiting four or six plants, one of which should have a coal mine in connection with the shale deposit, if this were possible.

When this work is completed, it is agreed that the accountant will make a report to the above cost committee, which, if agreeable to that body, will be recommended to the member of the Institute. This accountant is to formulate a uniform system for keeping costs to be applied to paving-brick plants for a lump sum not to exceed $1,000 (to be paid by the Institute) with an additional charge per day for installing the system at any of the factories where such assistance is desired. This per diem rate has been placed at thirty-five dollars, plus the necessary, incidental expenses of the accountant who makes the installation. It is understood that the work in connection with the survey will begin not later than January 15th, 1917.

MEMBERS PLEDGE THEIR FINANCIAL SUPPORT

Mr. Blair's reading of the committee's report was followed by an earnest discussion in which many of the Institute's prominent members, representing several of the largest paving-brick concerns in the country, indicated their willingness to back up the work of the committee to the extent of paying their proportion of the cost of bringing its work to a conclusion. Inasmuch as the Institute has no funds with which to engage an expert cost accountant, it was agreed that voluntary contributions should be received to defray this expense and a committee appointed to receive and solicit funds for this work. It seemed to be the sense of those present that the same cost committee should act in this capacity, a motion to this effect being passed.

It was then suggested that the cost committee be prepared with a report to read at the next meeting of the Institute, which will, in all probability, take place on May 8th and 9th at St. Louis, Mo.

This is but one of the many interesting topics discussed at the annual meeting above mentioned, and is only one of the many problems upon which this organization is working.

GOOD ATTENDANCE AT OPENING SESSION

When President Kanengeiser's gavel fell at three o'clock on the afternoon of December 5th there were present close to forty for the opening session. This number was considerably augmented on the second day. Owing to the fact that no business was transacted at the Alton(Ill.) meeting in July of this year, the minutes of the Portsmouth (Ohio) meeting held in April were read. It will be remembered that it was at this meeting the cost committee was appointed after an interesting paper had been read by C. C. Blair, which paper was published in the April 18th issue of "Brick and Clay Record."

Following the disposal of the minutes, a report of the membership committee was called for, which, having nothing to say, gave way to the treasurer who read a report showing a balance of $464.65 on hand.

The committee on the constitution and by-laws then made a report suggesting that the following changes be made:

CONSTITUTION.

Article V

The Institute shall meet annually during the month of December at a place that shall be convenient to the entire membership. In addition to the annual meeting, there shall be held one other regular meeting each year, at such time and place as may be directed by the board of directors.

BY-LAWS

Article I

Section 5. The board shall meet at the same time and place as the semi-annual meetings of the institute. Special meetings may be ordered by the president upon ten days' notice, but only such things may be considered at such meetings as are stated in the notice.

Article V

The program committee shall consider and submit to the board a program at each meeting to cover the following meeting, such program to include the time and place of meeting. The program committee shall make such arrangements as may be necessary for the holding of the meetings.

Article VII

Section 2. Following adjournment of any regular meeting of the Institute, a program including topics of interest to the Institute may be presented.

Present section No. 2 to follow the above section as section No. 3.

A motion was made that these changes be embodied in the present constitution and by-laws, and was unanimously passed.

WILL PAY NO MORE ENTERTAINMENT BILLS

A motion was made by O. W. Renkert, treasurer, that every company willing to hold an active membership in the association, the fee for which is twenty dollars per year, should be billed instead of the present procedure being followed—that of "touching" them at nearly every meeting. This motion was passed but the discussion which it brought forth lead up to a motion by Spencer M. Duty that the Institute cease paying for the entertainment of the delegates who attend the meetings, as has been the custom in the past. The idea in abolishing this practice was to conserve the funds of the Institute as much as possible. It was decided that those attending future meetings, beginning with the one at Cleveland, would pay their own transportation expenses in visiting the plants as a part of the program, and for any dinners which might be given by the Institute. This motion was acted upon favorably.

Owing to the fact that this was an annual meeting and, therefore, the election of officers was a necessary procedure, this business was immediately entered upon. Fred Kanengeiser, general superintendent of the Bessemer Limestone Company, and president of the Institute during 1916, was returned to office by a unanimous vote. The office of vice-president, having been vacant for some time, due to the fact that Dwight Humphrey, the former incumbent, has forsaken the industry, this opportunity was taken to elect a successor. Coles Peebles was suggested for the job, which motion was unanimously approved by those present. O. W. Renkert was re-elected treasurer.

H. H. MACDONALD ELECTED SECRETARY

It had been previously moved, seconded and passed that the Institute should hire a paid secretary who could devote a part of his time to the detail work incident to this office and which, by the way, has been growing tremendously in volume. An appropriation of three hundred dollars was allowed for this purpose and upon a motion by George Orr, H. H. Macdonald, assistant secretary of the National Paving Brick Manufacturers Association, was presented to the Institute as its "one best bet." Mr. Macdonald was unanimously elected by the members present, succeeding D. C. Wilcox of the Alliance (Ohio) Clay Products Company, who has served the Institute faithfully during its infancy, and assumed his new office amid a loud ovation and cries of "speech." "Mac," as he is familiarly known, said that he would be glad to accept the office if he could do anything to push the good work along, and thanked the members for the tribute which they paid him in his election to the secretary's portfolio. The election of a paid secretary was a good move on the part of the Institute, inasmuch as he will be able to give close attention to its affairs.

ST. LOUIS CHOSEN AS NEXT MEETING PLACE

In accordance with the new policy of the Institute, the program committee is to meet and consider a program at each meeting to cover the following meeting. This committee met on the morning of the 5th and presented a tentative program to the Institute in the afternoon which, as already has been indicated, calls for a meeting at St. Louis on May 8th and 9th at the Jefferson Hotel. The 8th is to be given over, the morning to a business session, and the afternoon to the reading of some valuable papers. Due to the fact that A. A. Holbeck was unable to be present at the Cleveland meeting to read his paper on "The Use of Powdered Coal," this paper was scheduled for the St. Louis meeting with the hope that Mr. Holbeck would be able to attend at that time and talk on this subject. In addition, it is proposed to secure an expert to read a paper on blasting, which will be augmented by a presentation of the subject, "Coal Handling," by R. B. Keplinger, and a paper on the continuous producer-gas-fired kiln. The second day—the 9th—will be given over to plant inspection, there being plenty of well equipped clayworking factories in the "Mound City."

This session was then adjourned to meet at ten o'clock the following morning.

PRODUCER GAS HAS AN INNING

"Producer Gas in Burning Brick," by John T. Underwood, was the first paper read on the morning of the 6th. This was followed by a prolonged discussion of producer gas as applied to periodic kilns. From the discussion it is very evident that there is considerable interest existing, at least in the paving-brick branch of the industry, concerning the use of this type of fuel. A very significant fact was brought out, namely, that in many places natural gas is rapidly being exhausted and those manufacturers who have been depending on that particular kind of fuel, will very soon be compelled to look for something to take its place. The rising cost of coal, together with the inefficiency of the ordinary hand-fired furnace which is well known among progressive ceramic engineers, is spurring clay plant managers on in an effort to get away from this method, and for this reason, they are looking with favor upon producer gas. A large number of questions were "fired" at Messrs. Underwood and Justice, who was also present, particularly concerning plants where the application of producer gas has evidently been a failure. These questions were answered in a good spirit and in every case to the entire satisfaction of the questioner, the whole discussion being characterized by a feeling of co-operation and the seeking of information, which augurs well for the advance of this particular type of fuel in the burning of clay wares.

TWO EXCELLENT PAPERS ON EQUIPMENT AND LABOR

The next number on the program was a paper entitled "Equipment Efficiency," by F. R. Kanengeiser. We will not take the space at this point to enter into a prolonged discussion of this exceedingly valuable contribution to ceramic literature. Mr. Kanengeiser's paper appears in full on another page of this issue, together with editorial comment. It is earnestly recommended that every reader who has anything whatever to do with the management of a clay plant give this paper a very careful, thoro reading.

A somewhat extended discussion followed the presentation of the above paper, the meeting then being adjourned for lunch to meet again at three o'clock in the afternoon.

William G. D. Orr, general manager of the Purington Paving Brick Company, Galesburg, Ill., fired the opening gun of the afternoon session by reading a concrete, jammed-with-ideas paper on "Labor." This also appears on another page of the current issue and will bear a very careful study. Mr. Orr has already had something to say concerning this important subject in the columns of "Brick and Clay Record," an article from his pen on "The Selection of Men" having appeared in the September 5th issue.

TELLS OF EXPERIENCES WITH A BONUS SYSTEM

Following up Mr. Orr's treatment of the labor problem as it confronts the paving-brick manufacturer or, in fact, the maker of any type of clay product, today, Spencer Duty talked at length on "The Development and Application of a Bonus System." Much has already been said in these columns concerning the efficiency of a bonus system, particularly in those articles written by Dwight T. Farnhum which have just recently been brought to a close. Mr. Duty's remarks on this subject were very refreshing and encouraging as a way in which to solve the problem of meeting the present insistent demands of labor. While Mr. Duty's paper was delivered orally, he was requested by President Kanengeiser to put his thoughts on paper, which he promised to do. It is hoped that we shall have the pleasure of reproducing this paper in full in a near future issue, as it is without doubt a valuable addition to the experience of those who are interested in this subject.

COMMITTEE TO RECEIVE DATA APPOINTED

Sandwiched in between the papers, R. T. Stull made a "speech" urging the members to send in to the Institute the results of their experiences and experiments, whether productive of positive or negative information. It was stated that, while a positive result is exceedingly valuable to manufacturers who are struggling with the same problem, negative information would often save many a dollar spent in useless experimenting. As a result of this short exhortation, a committee was appointed consisting of R. T. Stull, chairman, Marion W. Blair and Mr. Luetenberger. The function of this committee is to receive data from the members of the Institute, for filing, and also to recommend to the program committee certain subjects for discussion that may develop from the information sent in.

At the close of the afternoon session on the 6th, the Institute adjourned to convene again at 6:30 p. m. to break bread. A good dinner was served in one of the adjoining rooms which wound up with an interesting talk from Judge White of the Cleveland Municipal Court.

MEETING EMINENTLY SUCCESSFUL

Thus closed one of the best meetings which the Institute has ever held from the standpoint of accomplishments and results. This live organization will begin 1917 with something done and with a program before it that should be productive of considerable good to the members. Subjects of vital importance are being presented at the meetings, a testimony of the appreciation of which is seen in a constantly growing interest on the part of the members and unbounded enthusiasm in regard to the Institute's future.

* * *

Ten Dollar Christmas Brick in New York

Christmas brick for Manhattan at ten dollars at this writing seems absolutely certain. As a matter of fact, in some instances, special grades of commons have been sold at that figure the past week. Scheduled Hudson river common-brick changes were jolted last week, however, by a sudden flood of brick from the north country, the manufacturing plants of the Hudson river north of Newburg. The manufacturers, expecting freezing weather, sent large shipments into the market here and at Saturday noon there were 6,800,000 brick in the West Fifty-second street wholesale market and 2,400,000 more arrived on Monday morning, December 11th. The market therefore at this writing is firm with quotations at $9.50@9.75. Raritans are extremely scarce and no quotations are made, but despite this, the week began with the largest quantity of brick on hand that has been available to New York consumers in some time.

A week ago, with 2,000,000 brick left over from Saturday, there were only 3,600,000 without option in the open market. This shortage, coupled with a heavy building movement and only one dealer stacking, made the trade look for a raise to ten dollars and only the flood from up the river stemmed it. What would happen to the brick situation in Manhattan should a sudden freeze-up in the Hudson occur, is conjectural, but little anxiety is felt. Haverstraw, Roundout and Newburg yards continue to ship into this market.

HIGH PRICES FAIL TO CURTAIL BUILDING

It is becoming apparent that prospective builders are finding increasing financial encouragement to buy even at the current high prices. Portland cement prices have again changed, quotations running $1.87@1.97, owing to the high cost of handling materials. In the matter of sand, gravel, crushed stone, plate and window glass, copper, electrical supplies, metal and wire lath and paints and oils, things have reached a stage where it is not a question of price but of getting supplies. No one foresees price reductions for many months to come, probably not before next summer anyway, and there are reasons why some prices should go even higher. Labor is resting on its oars just now, but let the cost of living go a whit higher and then hear labor howl. Architects and builders are evidently resigned to conditions for the difficulty of obtaining contractors' figures has disappeared in some cases almost entirely, while in others, things are being made attractive by offering contractor's cost plus a fixed profit.

EQUIPMENT EFFICIENCY

Details, Small but Exceedingly Important, Which, if Given Attention, Will Place the Factory on the Surest Road to That Coveted Goal—the Dividend

By Fred R. Kanengeiser

General Superintendent, Bessemer (Pa.) Limestone Company

NECESSITY is fast forcing the clay plant owner to give more thought to the efficient operation of his factory. Swiftly mounting costs, both of material and labor, are demanding retrenchment and economy at all possible points and, inasmuch as labor is one of the most expensive items in the manufacture of clay products, it is coming in for a large share of attention.

¶*Clayworkers are resorting to all sorts of devices to keep their employes contented, without turning the business over to them. Bonus systems have suddenly become a very interesting subject, but without good equipment, a bonus system will accomplish very little. "We cannot," as the author of this paper says, "meet the labor problem with inefficient tools and equipment, for what workman has any incentive to better work in the factory where tools are inadequate, machinery is continually breaking down, power is off or the supply of material has run short?"*

¶*This is one of several good reasons why Mr. Kanengeiser's paper (read before the Institute of Paving Brick Manufacturers at its annual meeting in Cleveland, December 5th and 6th) is very timely and should not only be read, but studied by everyone who has anything to do with the operation of a clay plant.*

THE EQUIPMENT used in and about paving-brick plants is very largely of the same general character thruout this branch of the industry. We all use the same general type of brick machine, pugmill and dry-pan, drier car and transfer car. The belt drive is in universal use whether actuated by an engine thru a line shaft or by a motor. The belt conveyor seems to be a fixture about all paving-brick plants, and now, many plants are using crushers of various types as primary breakers in reducing their raw material.

It is then a study of the efficient operation of such equipment which I hope to present here today, but the field is broad, and any attempt to deal with every phase of the subject as related to paving-brick plants would require far more time than I feel permitted to take.

The subject of scientific management of industries, so much discussed and yet so little understood, generally means to me nothing more or less than the study of exact facts as related to any specific process, an analysis of their causes and then a cure of the same if defective.

MACHINERY SHOULD SHOW REASON FOR EXISTENCE

The equipment at hand for performing any specific work must come in for a cross-examination and must show cause why it should exist. If it is fundamentally correct, defects of detail are usually easily remedied. If not correct, it should be replaced with equipment which will give the service required.

The equipment on any brick plant may be classified as follows:

Prime movers and accessories.
Power transmission machinery.
Conveying machinery.
Forming or making machinery.
Drying and burning equipment.

I wish to discuss each of these subjects, some briefly and others more fully.

MAKE THE POWER PLANT WORK EVERY MINUTE

In most plants the power is furnished by a simple engine working on low pressure steam, while a few plants have installed electric drives thruout, either generating their own power or purchasing it from a power company when a satisfactory rate can be obtained; still others use both forms of power, driving the main parts of their machinery thru a line shaft and their outlying equipment with motors. It is not our purpose to enter into a discussion of the cost of power, but it is our purpose to make our existing equipment as efficient as possible. We know that any one of the above methods of power generation is fundamentally correct, and that while one may cost slightly less than the other, the difference in cost will not warrant a considerable investment and, therefore, will be adopted only as it makes for more flexibility or convenience. Let us then be content with the power at hand *but make the power plant ready for service every minute of every working day.*

POINTS TO BE WATCHED IN PRODUCING STEAM

First, we must see that the boiler water is as nearly correct as possible. Open feed water heaters are on the market in which the water may be treated hot—which is the most efficient way to treat it—thus the boiler tubes and shell may be kept practically free from scale and corrosion and present the least resistance to heat penetration. Of course, the natural result of less fuel consumed will follow. A good make of shaking grate bar should be used, for such a grate bar will save coal and labor. All pumps should be carefully packed. The writer has personally found leaky packing which was losing as much as 5,000 gallons of water per day. The cost of this water for a single day would cover the cost of time and packing to remedy the condition. Steam lines and valve stems should all be made tight and covered with magnesia asbestos covering, for the loss of steam at ninety pounds through a 1/16-inch hole is equal to the loss of one h. p. per hour, and the radiation of heat from steam pipes not covered is 2.7 B. t. u. per square foot, per hour, per degree difference in temperature;' while with the magnesia abestos covering it is .35 B. t. u. per square foot, per hour, per degree difference in temperature. This simply means, on a boiler plant running fifty per cent. efficient, using 14,000 B. t. u. coal with steam at one hundred pounds pressure, a loss per hour of 8.96 pounds of coal for each one hundred square feet of exposed pipe. The following computation shows how this loss is obtained:

2.7—.35=2.35 B. t. u.

337 degrees (temperature of steam)—70 degrees (temperature of atmosphere)=267 degrees.

2.35×267=627 B.t.u. per foot, or 62,700 B.t.u. per 100 feet.

50 per cent. efficiency×14,000 B. t. u.=7,000 B. t. u. per pound effective.

62,700÷7,000=8.96 pounds coal lost per hour.

NECESSARY APPARATUS ABOUT THE ENGINE ROOM

Then the engine should be kept in tune *at all times.* No engine room is complete without an indicator and the indicator should be used at least once a month and the valves governed accordingly. An Orsat apparatus should be used to control the combustion, or better still, a CO_2 recorder if you can afford it. Nearly all engines are far enough from the boilers so that a steam separator is essential, the water from which should return to the feed water heater. We have thus covered briefly the main points which make for efficiency of equipment in the simple engine power plant.

HOW TO CUT TRANSMISSION LOSSES

The transmission of power thru line shafting and belts is frequently the source of very heavy losses and, even under the best conditions, take a heavy toll from the boiler fuel pile. The amount of power thus used runs, under good conditions, as high as seventeen per cent. of the total power generated.

If, then, we find on our hands a line shaft, jack shafts, counter shafts, belts and pulleys, let us examine them carefully that they may be fundamentally correct. Our line shaft first. Is it level? Is it in line? A good contractor's level and a level rod, or better still, a rod made especially for reading levels on a line shaft will tell whether the shaft is level and the information can be obtained in a very short time. To learn whether a shaft is in line, we prefer to run a line with a transit twelve or fourteen inches from the shaft and parallel to it, setting a nail permanently into each pier. A steel scale square and machinist's level will tell the story very quickly. Having obtained something to work from, there is positively no excuse for permitting the misalignment of the main shaft.

Now study the layout of counter shafts and jack shafts with a view to eliminating shafting and boxes. Are the machines grouped so that the least amount of shafting is used? Can you drive that conveyor direct from the line shaft and cut out that jack shaft? Do so, if possible. Don't try to run a belt around a corner. The belts don't like it, and besides, it is offensive to the esthetic taste of the mechanical engineer.

The friction loss for each bearing is considerable, and if out of line, is naturally multiplied. The bearings used should be examined from time to time to see that the babbitt is full and in place. It does seem absurd to offer such advice to intelligent men, but I have personally been on paving-brick plants where one could see, *by only casual examination,* that shafting in various uses had worn into the cast iron of the boxes and that there was room enough between shaft and cap to insert one's finger, if you cared to take the risk. What excuse in the world can be offered for such conditions? *Such inefficiency of equipment costs money for every minute of every day as long as it exists.*

USE CARE IN SELECTION OF PULLEYS

Care should be taken in the selection of pulleys. A split cast iron pulley, generally speaking, seems to give the best results, altho wood split pulleys are quite satisfactory where conditions are dry. Very fine dry dust seems to be very detrimental to wood pulleys, inasmuch as it penetrates into the smallest opening, and being dry, acts as an absorbent, thus accumulating moisture and softening the glue. Place the pulleys with care, see that they are tightened evenly and squared with the shaft. *Time spent on this job is well spent,* if intelligence is used.

GIVE ATTENTION TO APPLICATION OF BELTS

We now come to the belts—our most annoying problem. The belt salesman makes life miserable by his arguments of superiority for his brand—arguments which, by the way, cannot easily be proved and probably never are. If he would talk application of belts more and thirty-two ounce duck less, most of us would be far better off both mentally and financially. In applying the belt, attention must be given, first to the size of pulley, then to the belt center, then to the belt, and last, but by no means least, to the belt fastener. It must be remembered that horsepower is transmitted thru a belt due to its arc of contact and its width, and *not due* to the number of square inches of contact. The adhesion of a belt to its pulley is independent of the pulley diameter. To quote from Kent's "Hand Book for Mechanical Engineers":

"A belt will slip just as readily on a pulley four feet in diameter as it will on a pulley two feet in diameter, provided the conditions of the faces of the pulleys, the arc of contact, the tension and the number of feet the belt travels per minute are the same in both cases."

PROPER SIZE OF PULLEY TO USE

Various factors are used to determine the pulley size best suited for a given drive. Six hundred to 1,000 feet per minute per one inch of width for a four-ply belt on 180 degree arc of contact indicates the range used by competent engineers. One thousand feet per minute per one inch of width per horsepower is used by Frederick W. Taylor and will check out very satisfactorily in practice. The pulley diameter should be large enough to protect the belt from damage, due to excessive bending and should increase with the thickness of the belt. Some authorities claim that nine inches is the smallest diameter on which a four-ply canvas belt should be used, but the writer would much prefer to use not less than a twelve-inch pulley for a four-ply belt. The most efficient belt speed is from 4,000 to 4,500 feet per minute, and the best belt centers from twenty to twenty-five feet, nothing being gained by increasing belt centers.

TIGHTENING AND FASTENING BELTS

In tightening belts care should be exercised that too much is not taken out. Two inches per ten feet of length of canvas should be sufficient, while one inch per ten feet of length for rubber is enough.

The belt fastening, generally speaking, has about one-half the strength of the solid belt and, therefore, may be a source of very serious trouble. So, in designing your belt installation, allow a factor of safety of three for the weakness of the joint. Most fasteners offered in the market are reasonably satisfactory when the belt has the proper design, but the writer has had most general success with the plate and rivet type and the plate and bolt type. The hinge type of fastener, while preferable, due to its flexibility, is no doubt the weakest fastener which we have.

ATTENTION ADDED FIVE YEARS TO LIFE OF BELT

Belts should be given continuous attention to keep them soft and pliable, since a pliable belt will transmit horsepower with far less slippage than a hard dry belt and will remain in service much longer. I have in mind an engine drive belt which had given ten years' service, but had not been given all the attention it should have received. The belt looked bad and a new one was ordered to replace it. After receiving the new belt, it dawned on us that perhaps we had not given this belt necessary attention. We forthwith obtained from the manufacturer of the belt a small can of the material with which the belt was originally filled. One damaged ply was removed and the belt treated. To make a long story short, the new belt remained in our store room for over five years before it was necessary to remove the original belt. Thus, the life had been prolonged fifty per cent. with but very little cost.

THE KIND OF BELT TO USE

The character of belts to use is of very great importance and can best be decided by the individual user.

Canvas belts are offered on the market which are of very good quality, are much lower in price than other grades and, in many places around a brick plant, give better length of life and are consequently much more economical.

Woven belts do not hold a fastener, and while very desirable for small pulleys, due to their construction, are expensive and generally unsatisfactory.

Rubber belts are best under dusty conditions. The dust will fill a canvas belt and make it very hard and slippery.

But one point stands out paramount in our experience. *No matter what the make of belt, or what its cost may have been, good service cannot be obtained unless it has been properly applied.*

CONVEYING MACHINERY

Conveying equipment must be considered as that machinery which conveys material in and about a brick plant and may consist largely of belt conveyors, bucket elevators or cars. We wish to touch each of these subjects as briefly as possible and yet bring out what we consider to be fundamentally correct design and operation.

We have had a long and varied experience with belt conveyors, a great deal of it disappointing, but we feel that we have at last come into the light and now know how to build, operate and maintain a fundamentally correct conveyor. The conveyor which we believe to be best suited for any conveying purposes must have two fundamental ideas worked into it. It must be correct in design and it must have a proper feeding arrangement.

To be correct in design, it must be so built that it will carry material at rest on its upper surface, *not along its sides or underneath.* The material at rest will not fall off, will impart no wear to the belt and will be delivered to its destination in a quiet and orderly manner.

EXPEDIENCE IS ONLY EXCUSE FOR DRAG BELT

At this point we wish to divert a little and warn against the type of conveyor called the drag belt or box conveyor. *This can have but one excuse for existing, and that is expedience.* It is expensive in maintenance and a power eater. It wears the belt on top, sides, bottom and edges, and is otherwise unsatisfactory. There is only one place that I believe its use to be justified and that is in conveying waste cuts from the off-bearing belt.

PROPER BELT WIDTH AND TYPE OF CONCENTRATOR

The width of the belt should be determined by the quantity of the material and size of pieces which it is desired to convey. As the size of pieces of material increase, the belt width must increase. Having decided upon the width of belt, select a good concentrator. Do not use cheap equipment of this character. We, personally, prefer the ball-bearing concentrator because of its light weight and better control of lubrication. We have found that it will outwear many times another type which we have used; largely, we believe, because it is always lubricated.

Concentrators should be set so that the concentrating roller stands at an angle of not more than fifteen degrees with the horizontal, they should be placed not more than five feet part, altho we prefer to set them four feet apart. The head and tail drum should be of ample size to pull the load. A take-up must be provided, and where space permits, the gravity take-up is undoubtedly the most satisfactory. It is our practice to place a board floor between the upper or carrying side of belt and the return side of belt. This floor is about eight inches from the upper side of belt and projects beyond the belt on both sides, thus all chance of spilling material onto the return belt is eliminated. Ample space must be provided on both sides of the belt to allow easy and careful inspection.

We are now ready for the material, and *"Aye, there's the rub,"* for how much time and money we have spent worrying along with improper feeding or delivery arrangements, and yet how simple it is when it has been properly arranged.

DESIGN OF FEED CHUTE EXTREMELY IMPORTANT

We have designed a chute which we use on all types of conveyors in both branches of our business. This is made of steel plate and is set at an angle of forty-five degrees thruout two-thirds of its length. The angle is then broken to 22½ degrees for about one-fourth of its length; then a flat lip, which is adjustable, is inserted. In case the material is very uniform, the adjustable feature is omitted. The sides of the chute begin at full width of the delivery opening, are then drawn in, so that they are one-half the width of belt apart when the chute reaches the belt. The sides are extended along the belt in the form of wings which slightly diverge. In this way, the material reaches the belt without battering or bruising it, is placed on the center of the belt and, when clear of the sides of chute, lays on the center with the edges of belt clean and with no chance of edge wear.

The speed of the belt must be given some attention, for a belt which runs too rapidly throws the material about, while when run too slowly, its capacity is materially decreased. It is our experience that conveyors around a clay plant should run at a speed of from 225 to 300 feet per minute.

DIFFERENCE BETWEEN PROPER AND IMPROPER METHODS

We herewith wish to cite some experiences in connection with belts used to feed dry-pans and running in pits under the floor of a storage bin. We have selected the records of four belts which worked under the old form of construction and in which improper methods were used to deliver the material to the belt and in which the conveyor was improperly constructed. Our old style conveyor installation was what you might call a guessing proposition. We guessed it would run all right.

The accompanying table sets forth very clearly the increased life of a belt and the saving in cost between the two forms of construction. One belt is now doing the work that two belts formerly did, and bids fair to last two or three times as long in point of time.

Bucket elevators should be treated the same in principle as conveyors.

Drier cars, the principal car used about a brick plant, should be given sufficient weight in design to stand the jars and strains in handling the load from stub to transfer, etc. The wheel and box in particular should be amply heavy.

MOLDING OR MAKING MACHINERY

To go into all the ramifications of the subject of "making" machinery, would require much time. We will, therefore, endeavor to be brief and touch only a few points.

In selecting a crusher, it is well to remember that the car carrying the material to the crusher should be turned as quickly as possible. The crusher then should have ample capacity. To obtain capacity, each type must be considered on its merits. Do not forget that any crusher which depends upon gravity for clearance is unfit for crushing shale. Shale is not rock, it is plastic or semi-plastic material and will sooner or later clog a jaw or gyratory crusher, thus causing delays, annoyance and a loss of production. A roll is then the proper crusher to use. A single roll breaker is proper for coarse or heavy material, and a double roll for finer material. The capacity of a roll is governed by its theoretical ribbon (area of opening times peripherial speed). No such capacity can ever be hoped for from a gyratory or jaw crusher.

I recently saw a beautifully built paving-brick plant, with every detail complete—labor-saving arrangements on all sides, one man feeding four dry-pans, then we went to the crusher. Four men were required to poke from 275 to 300 tons of shale thru a 1,000 ton capacity crusher. After all that I had previously seen, this was certainly disappointing.

MONEY MADE ONLY WHEN RUNNING FULL TIME

Now, a few words on the remainder of the "making" machinery. *This equipment makes money for the owner only as it runs full time.* The machine must first be kept true and in line, must have its bearings full and in good condition. .Then the wearing parts should be studied with a view to obtaining maximum wear. The use of manganese has prolonged the life of dry-pan screen plates very much indeed. The employment of a hardened auger and knives in the brick machine, while higher in cost, give much greater life, thus preventing possible break-downs or slowed-down production. These hardened augers retain their size, thus make for continuity of quantity output, and for efficiency in the equipment which is the point which we are striving for.

When we have covered our plant thoroly and well—when all of our equipment is running right—we are ready for the next problem—labor. *But we cannot meet the labor problem with inefficient tools and equipment, for what workman has any incentive to better work in a factory where tools are inadequate, machinery is continually breaking down, power is off or the supply of material has run short.*

It has been our object in this paper to call attention to the details of equipment, to the imperative need of intelligent design and arrangement and to impart what little knowledge we have acquired on the subject.

DON'T GUESS AT DETAILS

Details is a frequently maligned subject, but without the details having been given proper consideration, no mighty dream can ever be realized, no railroads can cross our continent and no brick plant can successfully run, therefore, do not guess at details. *Get the facts, the cause and effect.* Detach yourself from your own plant and look at it as a stranger would.

Analyze it, then you will see it as it is and soon will remedy the evils that exist and obtain the continuous operation which makes so much for satisfaction to the men, the management and the owners, and is in our mind the *surest road* to that coveted goal—*the dividend.*

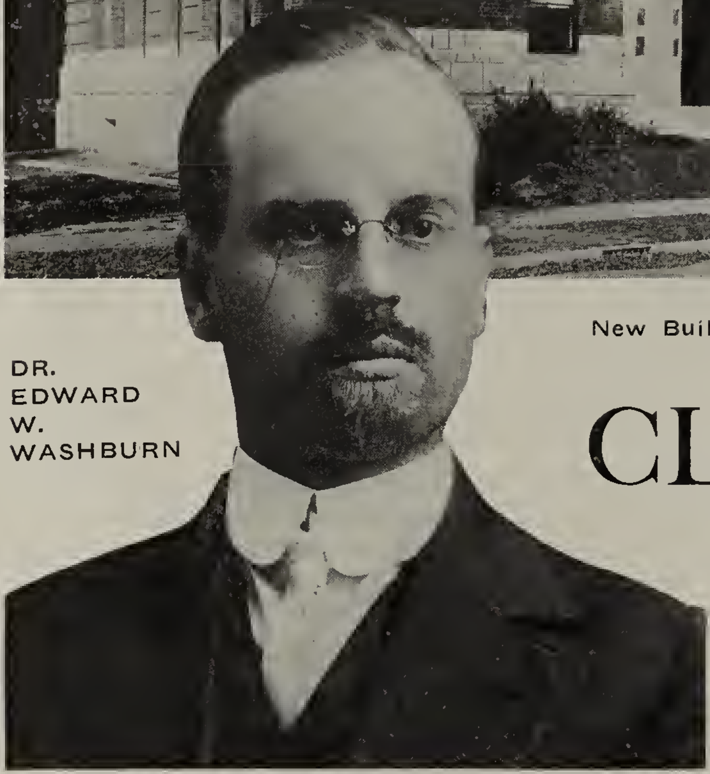
⁂

Many improvements are soon to be made on the newly acquired plant of the Colburn-Murray Brick Company, Minneapolis, Minn., which is located at Barr Station, near Zumbrota. E. Duke, superintendent, is now organizing a crew of men to work on the improvement. A storage shed, large enough to hold six months' supply of clay, is to be constructed, the smoke stacks raised fifteen feet, the kiln bottoms adjusted and a steam drier installed. Also the clay pit is to be stripped one hundred feet from the face.

STARTLING COMPARISON SHOWING DIFFERENCE IN LIFE AND SERVICE OF CONVEYOR BELTS, USING PROPER AND IMPROPER METHODS OF INSTALLATION AND DESIGN.

Kind of Belt	Length	Width	Ply	Speed Ft. per Min	Life	Cost Per ft.	Cost per M Per 100 ft. of Length	Remarks
Cotton woven	615 ft.	18 in.	6	390	1 yr. 3 mo. 2 das.	$1.77	.0222	Made 8,000,000 10-lb. block
Canvas	410 ft.	20 in.	6	53.4	1 yr. 9 mo. 4 das.	$0.825	.008	Made 10,500,000 10-lb. block
Canvas	408 ft.	18 in.	6	162	1 yr. 8 mo. 8 das.	$0.757	.0071	Made 10,600,000 10-lb. block. Box or drag conveyor. Belt worn to average width of 10 in. when removed
Canvas	410 ft.	18 in.	6	414.7	1 yr. 1 mo. 10 das.	$1.33	.019	Made 6,725,000 10-lb. block
Canvas	500 ft.	18 in.	6	301	1 yr. 25 das.			This belt was almost ready to throw away, put on under new construction gave 1 yr. 25 das. additional service. Made 21,000,000 on new equipment
Cotton woven	500 ft.	20 in.	6	301	Put on 3/21/15	$1.27	Cost to 12/1/16 .004	New belt. New conveyor. Made up to 12/1/16 30,621,000 10-lb. block. Shows no edge wear; no surface wear.

New Building Which is to House the Department of Ceramic Engineering, U. of I.



DR. EDWARD W. WASHBURN

Director of Ceramic Department, U. of I.

CLOSING CHAPTER WRITTEN *to a* TRIUMPH *in* CERAMIC EDUCATION

New University of Illinois Ceramics Building Dedicated With Elaborate Ceremonies and is Now Ready for Business

A LITTLE MORE than a year following the laying of the terra cotta "corner stone," the new building which has been erected for the Department of Ceramic Engineering at the University of Illinois, was dedicated on December 6th and 7th, thus closing an interesting chapter in the history of ceramic education in Illinois and opening a new era which should be productive of great results in the technical end of the industry.

The dedication also marked the culmination of a series of efforts on the part of Professor Charles W. Rolfe and the Illinois Clay Manufacturers' Association, extending over a number of years and attended by numerous difficulties which have been finally overcome thru perseverance.

POTTERY EXPERT SUGGESTED BY ADVISORY BOARD

At one-thirty o'clock on the afternoon of Wednesday, December 6th, as had been previously announced, a meeting of the advisory board of the Department of Ceramic Engineering, University of Illinois, was held in the office of the ceramics building. The members of this board who were present were as follows: A. W. Gates of Monmouth; W. D.

Gates of Chicago, and J. W. Stipes of Champaign. The enlarging of the board to seven members, so as to include a representation of more branches of the industry, was recommended. The members of this board now number five. It was also recommended that the faculty of the department be increased so as to include a man skilled in the manufacture of high-grade pottery.

From 2:30 to 4:30 p. m. the building was thrown open to visitors who came to witness the dedication, for a general inspection. Students were stationed in the various departments and were prepared to impart any information concerning these departments to those who might desire it.

INTRODUCTORY SESSION OF DEDICATION

On the evening of the same day, at eight o'clock, the introductory session of the dedication was held in the University auditorium with Doctor Edmund J. James, president of the University, presiding. A brief organ recital by J. Lawrence Erb, director of the University School of Music and also University organist, was followed by an address on "The Ceramic Resources of America" by Dr. S. W. Stratton, director of the United States Bureau of Standards, with headquarters at Washington, D. C. Dr. Stratton discussed the organization and formation of the various types of clay deposits, together with their most prominent geological and geographical positions in the United States. This was followed by a discussion of the reaction occurring during the burning of clay products. A detail classification of the various clay products fashioned from ceramic materials was also presented. The whole address gave a very clear idea of the great variety and extent of the clay resources of the nation and the multifold products which are manufactured from them.

Following this address, J. P. Beck, general manager of the Portland Cement Association, Chicago, gave an address on "Science as an Agency in the Development of the Portland Cement Industries." This ended the program for the first day and the meeting was adjourned until 8:30 a. m. Thursday, December 7th, when the technical session was opened at the University auditorium.

TECHNICAL SESSION

The presiding officer at this session was Dr. E. W. Washburn, professor of ceramic chemistry and head of the Department of Ceramic Engineering at the University. Dr. Washburn is probably very little known in ceramic circles, since he has but recently entered this field. However, among chemists Dr. Washburn's name is widely known as an authority on physical chemistry. Until September, 1916, he was at the head of the physical chemistry department at the University. Dr. Washburn's achievements in this branch of science are manifold and the ceramic fraternity can consider itself fortunate in having a man of his ability enter its field.

West End of the Kiln Laboratory, Showing Three Coal-fired and One Oil-fired Test Kilns

East End of Kiln Laboratory in the New University of Illinois Ceramics Building, Showing Brick and Other Clay Products Molding Machinery

The first speaker introduced by Dr. Washburn was W. D. Gates, president of the American Terra Cotta and Ceramic Company, and past president of the American Ceramic Society. His topic was: "The Manufacturer's Dependance Upon Ceramic Research." The importance of ceramics was emphasized by Mr. Gates, and he showed the relation of research to its progress when he said:

THE ORIGINAL CLAYWORKING EXPERIMENTER

"Manufacture has always been dependent upon research from the time of the first manufacturer and ceramic research is one of the oldest of all such lines employed. . . . . Ceramists have always been enthusiasts, optimists in the extreme, dreamers. The very first experimenter when he, or more probably she, found she could shape a cup from a plastic mass of clay, hesitated not at all but proceeded at once in an attempt to make a better one in which every ceramist has since followed her example. Nothing was so good that a better was not sought. Perfection was always sought but never acknowledged as being achieved—always a better body, better glaze, better shape and greater beauty have been pursued."

An interesting illustration, showing the extended use of ceramic wares, was cited by Mr. Gates when he said: "You drink your morning coffee from a cup of clay. More than a thousand times a year you eat your food from a plate of clay; you wash your face in a clay bowl; you take your bath in a clay tub; all the modern use of electricity would fail were it not for clay insulators; the paper you write on and the paper on your walls is largely composed of it and even the sugar you put in your tea is more than likely to have made its acquaintance, but in the latter case, not thru ceramic research."

MANUFACTURE OF ABRASIVES DESCRIBED

A discussion on the topic chosen by Mr. Gates followed, Ross C. Purdy, research engineer for the Norton Company, Worcester, Mass., speaking first. He outlined the gradual process followed while attempting to produce the present day high type of abrasives. Great interest in a description of the processes involved was manifested by those who were fortunate enough to hear this talk. Next, L. E. Barringer, president of the American Ceramic Society and engineer of installations for the General Electric Company, spoke on how a laboratory and good research work were indispensable in the modern plant where ceramics plays an important part in the manufactured ware.

EMPHASIZES IMPORTANCE OF GROUT IN BRICK ROAD

The second address of this session was given by W. W. Marr, chief state highway engineer of Illinois, upon the topic: "The Use of Ceramic Materials in Highway Construction." Among other things, Mr. Marr said:

"Brick pavements have always been popular and are more popular now than ever before. The new type of monolithic brick road is gaining material favor and seems to offer immense possibilities. I regard proper grouting of the brick as of prime importance and believe that with a well drained, settled road bed, the thickness of concrete base for brick pavements is of little significance. Heavy loads do not make an appreciable impression on ordinary dry earth roads. From this I take it that the earth itself sustains the load, providing it is settled and dried. The problem then seems to be to keep the earth under brick pavements in a dried condition, after it has once settled by properly waterproofing it. This is accomplished by a perfect grout filler. Perfection is also necessary to insure stability in the structure."

PICTURES ST. LOUIS-CHICAGO BRICK HIGHWAY

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, then followed with a discussion on brick as the best material for paving. "Just last week," said Mr. Blair. "I had the pleasure of looking upon a steriopticon picture of the Messinian road built three thousand years before the Christian era. This road bore the travel for all of the immense supplies from the sea to the populous city of that domain in the age and in the center of a most wonderful civilization and art. In looking upon the road in such a wonderful state of preservation, over which has been borne millions of tons of merchandise, I could not but wonder what it would mean to the state of Illinois if we had such a brick road as we can build today, capable of carrying the millions of tons of market products, merchandise and passenger travel from the city of the Great Lakes to the city of the Great River. I do predict that such a road will be built and very soon. I would not, however, undertake to predict the limit of the thorofares that will follow in succession after such a road is built, but if such a road is to be built, with what shall it be built? What in the wisdom of the University has been done here to make this building stand the wear and tear of natural injury of time and of years? You have built with ceramic materials, brick and cement, to the end that every brick is to be held by the cement exactly in place until time and use shall slowly, oh so slowly, reduce this magnificent structure to a condition either no longer fit for use or no longer to be used by the civilization which has built it. If this great example of real road is to be built, why not build it in the same wise way?"

Corridor on the First Floor of the New Ceramics Building, Showing Display Panels of Different Styles of Face-brick

This talk was followed by a paper prepared by G. G. Wooley, engineer for the Road Bureau of the Portland Cement Association, Chicago.

CLAY PRODUCTS ONE-FOURTH OF BUILDING COSTS

H. J. Burt, a structural engineer of Chicago, next spoke on "Ceramic Products as Structural Materials." He brought out the importance of ceramic materials in building construction by stating that they constitute twenty-five per cent. of the total cost of the building and if the cost of labor and handling same was included it would reach above fifty per cent. He also urged a standardization of building brick by manufacturers, putting them into four classes, perhaps. A. V. Bleininger, ceramic chemist of the U. S. Bureau of Standards, followed with a discussion of this topic and stated that attempts have been made to formulate standard specifications for building brick, but as yet, no satsifactory results had been obtained. This is partly due to the fact that the brick used in Chicago are very different in character than those used in New York or New Orleans.

CLAIMS BEAUTY IN BUILDING IS NEGLECTED

"The Use of Ceramic Products in the Artistic Embellishment of Buildings," was the subject of an address by Claude Bragdon, author and architect of Rochester, N. Y. Mr. Bragdon emphasized the fact that the present-day trend was to build structures of strength and durability only and not enough interest was shown in the beautification of the building. A discussion by G. C. Mars of the Department of Service, Hydraulic-Press Brick Company, St. Louis, on this same subject, followed. Mr. Mars showed how nicely brick filled the need of both structural strength and beauty in building. F. Wm. Walker, superintendent of the Beaver Falls Art Tile Company, Beaver Falls, Pa., who was also to take part in the discussion of this subject, was unable to be present.

At the close of this session, the speakers and guests of the University were entertained at luncheon at the University Club by the dean and heads of the College of Engineering.

SESSION OF DEDICATION

At 2:30 o'clock on the afternoon of the same day, the session of dedication was held in the University auditorium with Dean W. F. M. Goss of the College of Engineering, presiding. After an invocation by the Reverend C. R. Adams, the Honorable W. L. Abbott, president of the board of trustees of the University, gave the address on behalf of the University. The Honorable Edward F. Dunne, Governor of Illinois, who was also scheduled to speak on this occasion, was unable to attend, owing to the necessity for his entertaining a prominent guest—Governor Lamm of Missouri.

PROF. BINNS TRACES HISTORY OF CLAYWORKING

The main address of the afternoon was given by Professor Charles F. Binns, director of the New York State School of Clayworking and Ceramics. Professor Binns, who chose as his subject, "The History of the Ceramic Arts," said in part:

"Clay has been so extensively used by man that it is not possible to confine a study of it to any one race or age. As tribes have grown into nations, nations have become empires and empires in turn have blossomed into republics, so the arts of the people have been conceived and developed. The expression of the individual directed the work of the family and the patronage and appreciation of the head of the tribe established a standard of quality. So, as each nation has arisen, it has developed a production of its own. All nations have not passed, at the same time, thru the stages of growth from barbarism to civilization so that there has been primitive pottery produced at all stages of history. Primitive pottery is being made at the present time, for example by American Indians, because these people are still living in the stone age."

Professor Binns then went on to trace the history of the ceramic arts down to the present day and age, showing the many improvements that have been accomplished by the way and the interesting evolution thru which the industry has passed.

The exercises were closed with an address by President Edmund J. James of the University of Illinois, wherein he described the growth of the Department of Ceramic Engineering. He attributed much of the credit for the creation of this department to Professor Charles W. Rolfe of the Department of Geology. After singing "America" the audience marched to the music of the university band to the new building, where the prayer of dedication was delivered by the Reverend John Mitchell Page.

ILLINOIS STUDENT BRANCH OF A. C. S. INSTALLED

In the evening, a University of Illinois student branch of the American Ceramic Society was formally installed by L. E. Barringer, president of the parent organization. Following the installation exercises, the visitors and students held a smoker in the parlors of the Beta Theta Pi fraternity house, where a sociable time closed a very interesting and instructive two days' meeting.

CERAMIC MATERIALS USED WHEREVER POSSIBLE

Much can be said concerning the University of Illinois ceramics building, which is a masterpiece of ceramic art. The facing material is a very light grayish terra cotta, speckled with a faint pink, this being a trimming for the face-brick which is of the textured variety, deep red to purple in shading and laid in the new "Tiffany" effect—the lighter shades being near the ground and gradually growing darker, until, under the eves, the very darkest of this kind of brick is to be seen. The building, exclusive of the kiln laboratory to which it is connected by means of a corridor, covers a ground area of sixty-seven by one hundred and eighty-nine feet, with a basement under all. It is three stories in height with an attic.

The entire basement is given over to the fan system and storage rooms. The first floor contains the ceramic materials laboratory, an office and private laboratory. On the second floor is found the offices of the department, offices and private laboratories for two professors, the library, lecture, class and drafting rooms, and several laboratories devoted to chemical and physical work and to high temperature investigations. For the present the offices and laboratories of the Geological Survey occupy the third story of the building and a portion of the first floor is also given over to the concrete testing laboratory. Space is provided on the fourth floor, or attic, for the distilling apparatus which furnishes a supply of pure distilled water to the building.

A LIST OF THOSE WHO DONATED BRICK PANELS

The walls of the main corridor on the first floor have been decorated with display panels, showing different styles of face-brick. These panels were donated and erected by the following firms:

Western Brick Company, Danville, Ill.
Sheldon Brick Company, Urbana, Ill.
Hydraulic-Press Brick Company, St. Louis, Mo., Indianapolis, Ind., and Aledo, Ill.
West Salem Hollow Brick and Tile Company, West Salem, Ill.
Streator Brick Company, Streator, Ill.
Decatur Brick Company, Decatur, Ill.
Acme Brick Company, Cayuga, Ind.
Brazil Clay Company, Brazil, Ind.
La Salle Pressed Brick Company, La Salle, Ill.
C. E. Poston, Attica, Ind.

* * *

Ancient Rome Had No Bath Like This

Without a doubt, no other one factor played so important a part in the beautification of Seattle's famous natatorium, the "Crystal Pool," than did the terra cotta with which it is faced, and which was supplied by the Northern Clay Company of Seattle, Wash. The edifice stands not only as a monument to the wonderful architectural beauty that is made possible by the use of terra cotta, but it also reflects the remarkable strides made in the manufacture of this material within recent years—strides with which the Northern Clay Company has always kept abreast.

The "Crystal Pool" was built at a cost of more than two hundred thousand dollars and is the center of play and physical development in Seattle. Equipped with comforts and conveniences that are peerless and possessing water purifiers that are the latest word in sanitary science, the natatorium is second to none in the country. In fact, it has out-done by far the Baths of Rome whose fame has lived for ages.

A very attractive booklet that gives the history and development of this remarkable edifice is the authority for the statement that more than 7,800 pieces of terra cotta were used in the structure. Of this number, more than 500 were of different shapes and sizes. Polychrome terra cotta was employed which possessed a beautiful surface.

A very interesting sketch of the method of manufacturing terra cotta is also included in the booklet, telling how the clay model is formed from the shop drawings that have been made from the plans of the building; how the material is pressed into the molds made from the model, and following up the operations until the piece is ready to be set in its proper place in the building.

* * *

Perth Amboy Celebrates 250th Anniversary

It is more than probable that immediately after the first of the coming year, action will be taken by the clay products manufacturers located in the Perth Amboy (N. J.) district toward making arrangements to take part in the celebration of the 250th anniversary of the city of Perth Amboy.

In speaking of the coming celebration, clay men in the Raritan river district point with pride to the development of the city as brought about by their industry. With the city located on an enormous clay mine, the supply from which seems to be unlimited, manufacturers of clay products declare that no other natural advantage has done so much for the advancement of Perth Amboy as has this.

LABOR

Being an Appeal to Paving-brick Makers to Get Together With a View Toward Clarifying the Present Labor Situation, Putting the Right Man on the Right Job and Getting Into Better Position to Resist the Lawless Demands of Unionism

By Wm. G. D. Orr

General Manager, Purington Paving Brick Company,
Galesburg, Ill.

¶ This paper, which was read before the annual meeting of the Institute of Paving Brick Manufacturers held at Cleveland, Ohio, on December 5th and 6th, was followed by a very valuable discussion of the many phases of the question.

¶ Upon the suggestion of Mr. Orr, it was agreed by those present to submit wage scales to the secretary for compilation and distribution to the membership.

¶ The Institute is to be congratulated upon this forward step and its results will be awaited with considerable interest.

IN MY OPINION, the labor situation is the greatest problem facing the American manufacturer today, and to the manufacturers of paving-brick, it is especially serious because our costs depend almost entirely on the cost of two items, namely, coal and labor.

RESULTS OF EXPERIMENTS SHOULD BE RECORDED

It is, therefore, the duty of this Institute to make an exhaustive investigation of all reasonable methods suggested which promise economy in the consumption of either element. Unfortunately, most of the experiments made on brick plants are not recorded. Those that are successful are sometimes adopted, but the failures are lost, and I am sure that many of the so-called failures could have been carried to successful conclusion, had an authentic history of experiments been kept. Such a history would undoubtedly show that some experiments had been made hundreds of times. They will probably be made time and again until more scientific records are kept. For instance, at the present time we are all interested in the development of powdered coal and producer gas as applied to burning brick. I know of one paving-brick company burning periodical kilns with producer gas, and none using powdered coal. If, for some unforeseen reason, the company using producer gas should abandon the scheme—I say unforeseen reason because I have recently inspected the installation and believe, from what I learned, that it has solved the particular fuel problem confronting that company—but should they give it up, the knowledge gained by their experience would be lost to the industry.

A COLLECTIVE EXPERIMENT WITH POWDERED COAL

An experiment with powdered coal will cost considerable money—so much, perhaps, that no single company will care to make it until face to face with a fuel crisis. However, the experiment should be made and made at once, and I suggest that it be done at the expense of this Institute, or with a fund collected from our members, and that such records of the experiment be kept that we will be able to judge for ourselves whether or not the system is adaptable and advisable for each or any of our particular needs.

I speak of these two cases because they are the main subjects up for our attention at this meeting. But the same principal of experiment and record applies to our labor problem as much as to machinery, equipment and fuel.

A COMPARISON OF WAGES POSSIBLE

Hardly any of us pay the same wage for the same job and probably never will do so, on account of the varying conditions to be met on our plants, but the sense of proportion does not vary beyond the point where we could and should make intelligent comparisons of wage scales and working conditions.

On some plants the wheelers are paid more than the setters; on others the reverse is the case. On some plants the pug-mill man gets more than the man who attends the brick machine, and vice versa. But when the time comes for an adjustment of wages, the cases where your competitor is paying more in one particular department than you are will have more bearing on the settlement than the cases where your wages are higher than your competitors.

WHY NOT SEND SCALES TO SECRETARY?

C. C. Barr suggested a few days ago that wage comparisons should be made. I heartily agree with him, and think we should go farther. I believe and suggest to this Institute that all members should send their complete wage scale to our secretary and with the wage scale an explanation of the work required of the employe in each department. For example, after giving the setting rate, the accompanying statement should show whether or not the rate includes sanding and trucking. After giving the wheeling rate, it should show whether or not the wheelers are required to lay and build their own run. The scales should be tabulated in such a way that they can be compared. If this suggestion is followed, we will all be in a better position to meet the constantly increasing demands that are being made upon us.

Wages will not go back to any great extent when the present abnormal conditions have passed. There may possibly be a slight reduction, but past experience has taught that labor usually holds its own. The present general demand for shorter hours is just as serious to us as the high rates, and if we expect to meet both issues successfully, we must co-operate.

THE WORLD'S IMPRESSION OF CLAYWORKING

The general impression held by the public is that brick yards are so inefficiently operated that any sort of a man is good enough to work on them. I read a few days ago that the emperor of the Germans suggested that war cripples be put to work in brick and tile factories. We all know that there are few places for cripples on the modern brick yard. Some employers even insist that all men pass a physical and medical examination before being employed, and in states where compensation laws are in force, it is the proper precaution to take.

We must not only make every effort to correct these false impressions, but must make the changes necessary to put the right man on the right job, and thereby make employment on brick yards more attractive and more profitable.

COMMON DECENCY DICTATES EMPLOYES' WASHROOMS

I received a letter a few days ago from one of our trade papers asking if the law in the State of Illinois required brick plants to install wash rooms for their employes. They had received a letter from one of their subscribers asking the question. It undoubtedly was the intention of their subscriber to refuse to install wash rooms unless the law compelled it. I replied saying that I was not sure that the law made it necessary, but that common decency did. This is merely an example which shows that the employers, as well as the employes, need educating to meet modern conditions, and we must work to the end of educating ourselves and our employes to the understanding that our goal is mutual. Otherwise, the present spirit of reprisal will continue to gain impetus.

Organized labor proposes by unregulated force to have its own way, of which we have recently had an example in the passing of the Adamson law, and Mr. Gompers has said that they are going to get it. Please mark his words, *"Law or no law."*

Let us from now on be so organized and truthfully informed by each other that we will be the better prepared to defend ourselves and retain for the industry the position of prominence which it deserves.

* * *

Keeping Roads Fit by Tile Drainage

A very interesting report from the Wisconsin Highway Commission regarding means of preventing springy places and sink holes from occurring in roads and eliminating those which have already set in, contains a valuable thought for the manufacturer of drain-tile in that it presents the possibility of greatly extending the market for that commodity. Regardless of the type of road being built, whether it be of the hard surfaced type or of the gravel surface variety, good drainage is a prerequisite. Unless the underground water is taken care of properly by means of tile drains, wet spots are bound to occur in periods of excessive rain, or in the early spring season when winter snows melt and run off into the low spots.

Since good roads' enthusiasm is so prevalent thruout the nation, it is an opportune time for the manufacturer of drain-tile to get in a word or two regarding the immediate development of the roads available until the time comes when they will be elevated to a higher class. A few valuable suggestions regarding road drainage are contained in the report referred to above which will interest many of our readers. The report follows:

"Most of the springy places or sink holes in roads are due to two causes: Lack of drainage in the side ditches, and second, and probably the greater cause, lack of drainage beneath the surface. In other words, the underground water flows so close to the surface of the road that there is not sufficient hard crust to hold up the travel, and the whole road surface cuts through and becomes bottomless. Deepening the ditches will help, inasmuch as they will help get the surface water off the road into the ditches, and will carry it away, if the ditches are properly dug. But no matter how deep the side ditches are made (within limits of safety to travel), they will not catch any great part of the underground water, as it flows just so far below the surface wherever the surface is.

"In the case of springy places on flats or near marshes, the road should be raised as much as money permits, the side ditches deepened and made with an even grade so that they discharge to some outlet. Down the center of the road, as deep as you can get it and still get an outlet, should be laid a line of four or six-inch land tile. Inverted sod or burlap should be placed over the tile joints. The trench for this should be dug with ordinary tiling tools to an even grade. It is much better if the trench is back-filled with clean crushed stone or clean stoney gravel. These things being done, you will be astounded at the improvement in conditions next spring and in all wet times. The tile should be given a fall of about three inches in 100 feet, if it is possible to get it, the more the better, though it will flow with a fall of as little as one inch in 100 feet, if well laid. If the trench described above is filled with rock or coarse gravel, results are secured, but tile is much better.

"The short spring holes, on hills usually, should be treated by opening good ditches at each side so the surface water flows off readily, and then in the shoulder about ten feet from the center of the road should be laid a four or six-inch tile at a depth of at least three feet below the center of the road. This tile should be placed on the edge of the road toward the side from which the underground water comes (the side of the road on which the land is highest).

"The trench should be back-filled with stone or gravel, and if this work is well done so the tile runs freely, you will be surprised to see the amount of water it will discharge, and the improvement in the road during all wet seasons. In exceptional cases, the tile should be placed on both sides of the road, but usually a line of tile on the high side will intercept the underground flow and lower the water level enough to save the road. Piling stone in sink holes until the bottom is reached will usually improve conditions, but the expense of this method of fixing a sink hole is usually very much greater than tiling it, and the results are not as good, because it does not remove the cause which produces the bad spot, while tile does.

"Four-inch unglazed field tile is worth from three to five cents per foot; six-inch from four and one-half to seven cents per foot; four-inch glazed sewer pipe with bell is worth from six to ten cents per foot, six-inch from ten to fourteen cents per foot. Prices vary with quality desired, kind of delivery and local profit. Your local dealer can give you prices.

"As for surface drainage, the only safe rule is to grade the road so the water will run promptly from the surface of the road into the ditches, and to so grade the ditches that water will not stand at any point, but flow rapidly along the ditches and away to some natural outlet. Standing water (except in some cases on marshes) is evidence of lack of care in making and maintaining the ditches, and a sink hole or springy place is an absolute indication that both side ditches and tile underdrain are very badly needed."

POTTERS GATHER *and* DISCUSS WOES

Close Year of Troubles with Annual Meeting at Pittsburgh, December 5th and 6th, Where Fuel and Labor Are Principal Topics

THE thirty-eighth annual convention of the United States Potters' Association was called to order by President T. A. McNicol of East Liverpool, Ohio, in the Blue Room of the William Penn Hotel, Pittsburgh, Pa., on December 5th, and continued for two days. During this time some of the most important discussions and reports that have ever been presented to that body of manufacturers claimed the undivided attention of those whose names had been affixed to the register.

ATTENTION FOCUSED UPON LABOR PROBLEMS

The reason for the great importance of this convention is easily understood when a review is made of the events which have taken place during the past year that materially reduced the capacities of practically every domestic pottery manufacturing plant in the United States. The unlimited amount of trouble which the pottery manufacturers have experienced with workers who have seen fit to violate all the agreements made by their union at the previous annual meeting, caused a spirit of intense earnestness to be apparent at the gathering, and it is not unreasonable to believe that as a result of the work accomplished, another agreement will not be entered into by the manufacturers unless a sufficient guarantee is forthcoming from the workers or their union that the agreement will be respected. A new wage scale is also to be promulgated during the coming summer, and before the next annual convention is held.

PRESIDENT'S ADDRESS STRIKES KEYNOTE

In calling the convention to order, President McNicol reviewed hurriedly the difficulties thru which the pottery manufacturers have had to struggle during the year that is now drawing to a close. He referred to the optimistic outlook of a year ago, when indications pointed to a cessation of the low tariff and when an agreement had been signed with the National Brotherhood of Operative Potters that would not, it was supposed, terminate until 1917, offering a basis for the computation of operating costs to prevail during the year—a basis upon which a large volume of business was subsequently booked. Then the change which came over night, the conditions which set in when the workmen got the whip hand, broke their vows of loyalty to the Brotherhood, and showed their teeth to the employers by making unreasonable demands, were gone over by the president. Following this, he complimented the membership upon the loyalty which existed in the ranks during the period of labor unrest, and the labor committee for the excellent work it performed under the most difficult conditions.

SUBSTANTIAL REPORTS MADE BY MANY COMMITTEES

The reports of practically all of the committees contained much of interest and value. Data regarding the use of new machinery and methods of operation in the manufacture of domestic pottery was presented in the report of the machinery committee made by its chairman, Mark Solon, who decried the lack of initiative on the part of the whole trade toward the improvement of mechanical appliances. The work accomplished by the Transportation Committee in minimizing freight charges was gone over by H. P. Knoblock, chairman.

FUEL PROBLEM BECOMING SERIOUS

An exceedingly interesting report was made by the Kiln and Fuel Committee thru its Chairman, Guy L. Crooks, in which it was suggested that an extensive study be made of the fuel problem, in the hope that the critical condition, which faces the industry as a result of the failure of natural gas in many sections, may be in some measure alleviated, and in which favorable comments were made upon the use of producer gas in the manufacture of pottery products. The great work which is being accomplished by the strict adherence of practically all of the members of the association to the discharge agreement enacted at a previous meeting was presented for consideration by President T. A. McNicol and Secretary Charles F. Goodwin, as the report of the Western Discharge Committee, and the great possibilities for the development of art and design in the products to be manufactured during the coming year, were called to the attention of the delegates by the Art and Design Committee thru its chairman, O. H. Phillips.

The work that had been done by the Membership Committee, which was instrumental in getting into the association two pottery manufacturing concerns that had heretofore been outside the fold, was presented by Chas. C. Ashbaugh, chairman, and the applications for associate memberships of three more concerns were introduced in connection with his report. The Price List Committee advised that no changes be made in the list price of any article at the present time because of the upset conditions of the market, the recent advances in the selling rates and the uncertain future.

ESTABLISHMENT OF RESEARCH BUREAU URGED

One of the most important reports of the convention was submitted by the Material Committee, thru its chairman, Ernest Mayer, in which it urged the manufacturers to make a deeper and broader study of the industry. Among other things, this committee advised the establishment of a research bureau which could, in a proper manner, test all materials that showed reasonable prospects of utility, and give valuable advice to the potter as to the best method of using same. Such a bureau would test all materials offered and would report same to the association and not to the individual members. A bureau of this character, according to the committee, should be maintained by the association in a district where the greatest number of potters are located and its work to be directed by the Executive Committee of the United States Potters' Association. Recommendation was made that a committee be appointed to investigate the proposed bureau, to ascertain the practicability of such a scheme and to determine the amount of money necessary to equip and operate it.

LABOR COMMITTEE DEALS VITAL BLOW

However important the reports of the above committees may have been, they were subordinate to that made by the Labor Committee thru its chairman, W. E. Wells, which, while calling a spade a spade and being positive to speak solely upon undisputable facts, related the troubles the labor manufacturers passed thru during the past fiscal year and referred to the necessity of having more substantial guarantees from the workers than have been given the manufacturers heretofore. Speaking of the outrageous demands made by uscrupulous workers who broke their vows to the union and showed great disloyalty to their employers, Mr. Wells said in part:

"Time and again during the past six months the agreement between the association and Brotherhood has been repudiated, the potteries of your members have been closed entirely or in part, and the Brotherhood discredited and dishonored by a class of bandits calling themselves union men who will respect their own solemn pledges only in so far as they may be compelled to do so by necessity or by law.

FAIR-MINDED WORKERS COWED INTO SUBMISSION

"It is the general belief, and it is probably true, that a majority of the members of the Brotherhood are not in sympathy with the 'stand and deliver' methods of this class of highbinders, but the class is big enough to control the entire membership of some of the locals, and the entire body of workmen in same of the branches. The fair-minded men have not been much in evidence. They have not asserted their independence, but have meekly submitted to the outrageous dictates of unscrupulous men who are a disgrace to unionism and a menace to any industry or community afflicted with their presence."

While not questioning the sincerity of the Brotherhood officials in their desire that the men shall play fair, Mr. Wells went on to say: "The only criticism that may justly attach to the officials is that their organization does not possess effective machinery for enforcement, nor have they consistently imposed the penalties which their laws do provide for gross breach of obligation. Men who have repeatedly defied the authority of the Brotherhood and glaringly violated the vital rules of the organization are not only unpunished, but are still recognized as members in good standing, some of them still holding positions of grave responsibility.

BROTHERHOOD FAILS TO SUPPRESS VIOLATORS

"It should not be forgotten that our method of bargaining with the Brotherhood is the plan that they demanded. It must not be forgotten that they assumed responsibility for the good faith of the men. They have not made good. Under the first real test, the agreement becomes a worthless scrap of paper, the authority of the Brotherhood collapses, and the employers sustain incalculable damage as the result of breach of contract. It has been demonstrated that the wage agreement is effective just so long as a man discharged for dishonest behavior cannot readily find other employment, but just so soon as the labor demand exceeds the supply, the tyranny of labor begins. The conservative union element is submerged, the radical element takes the saddle, and when that element conceives it has the employer at its mercy, it has no mercy."

UNHAPPY EXPERIENCES JUSTIFY SEVERE ARRAIGNMENT

This severe arraignment was then shown by Mr. Wells to be no more than a plain statement of cold facts, borne out in countless instances by the unhappy experiences of the past eight months. In support of these charges, and as a matter of record, a number of the aggravated cases of violation, which took place during this period and which were countenanced by local unions, were then recited. Cases where walkouts occurred four hours after the demand for an increase in wages had been made by warehouse employes; where kiln drawers walked out in every plant in the East Liverpool district on a strike inaugurated without notice and the demand for a wage increase of $2.00 per man per kiln delayed until the second day after the walk-out occurred. Mention was made of the unreasonable demands made by the moldmakers that would net the workmen about $1.00 an hour and which was accompanied with a notice that, without awaiting the action of the Standing Committee, they would strike at once if their demands were not met.

IMMENSE LOSS CHARGED TO CONTROVERSIES

The total loss of business resulting from the six weeks' strike of the saggermakers of East Liverpool, Ohio, carried on in violation of the agreements existing between the manufacturers and Brotherhood, was little if any less than the equivalent of 1,000 glost kilns and a loss of wages to employes of half a million dollars.

In direct contrast to the actions of laboring elements, the generous position taken by the association when it granted a wage increase which became effective November 15th last was then discussed, together with the other voluntary increases granted between May and November, which, it is reported, will cost the members of the association $800,000 in one year of normal operation.

SHALL ANOTHER AGREEMENT BE MADE?

Mr. Wells' very gripping denunciation of the existing relations between the workmen and manufacturers was concluded by the statements that, "since the present contract will expire before the next annual convention of this association, the question comes properly before this meeting as to whether another agreement with the Brotherhood shall be entertained without more substantial guarantees than have been given us heretofore. Whether the Brotherhood, thru its proven inability to enforce observance of contract has cancelled its right to deal with this association in the old way, is a vital point upon which your committee awaits your decision."

⁂

State Highway Officials Meet in St. Louis

What many paving-brick manufacturers believe to be a very important meeting looking to the improvement of the highways of the country, was held at St. Louis, Mo., on December 6th, 7th and 8th, under the direction of the American Association of State Highway Officials, and at which Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, had an opportunity of presenting the merits of brick. Other officials of organizations interested in good paving were heard, and while no opinion was expressed by the Association regarding any one material, adoption of many of the suggestions offered was urged as a means toward improving the state highways of the country. As a means to that end it was thought that the present Federal Aid Law, as it relates to co-operation between the national government and the states, is both practical and workable, especially in connection with a general improvement such as road building. This is proved by the fact that thirty states were represented at this conference by highway officials and engineers, as well as representatives of the Office of Public Roads of the Department of Agriculture.

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a Waste, Improve Your Ware
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Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

Cannot Get Capacity from Dry-Pan

802. *Iowa.—We are grinding a fire-clay, part of which is gummy and sticky, while the balance is sandy and hard. This clay runs thru the dry-pan without any trouble when weather conditions are right and, if we would not be obliged to grind the yellow sticky surface clay with it as a mixture, we would have no trouble at any time. We are having considerable difficulty in getting the capacity out of our dry-pan to supply our press and are obliged to put in extra time grinding and screening. If there was some way of crushing and grinding the tailings without returning them to the pan, we believe we could get sufficient material thru it to keep the press working to full capacity. Would a disintegrator take care of the tailings and grind them sufficiently fine so that we would not be obliged to run them over a screen?*

There are a great many ways in which this difficulty may be cured or alleviated but, as is our usual predicament, we do not have enough information concerning your conditions.

A member of our staff, who at one time has managed a number of clay plants, states that he has been up against this identical difficulty. He used quarter-inch perforations in the screen plates, returning all tailings direct to the pan. He states, however, that he was often compelled to operate the pan an hour earlier in the morning, during the noon hour and for an hour after the usual quitting time.

In addition to this, he managed to have a store of dry clay near the pan to shovel into it when the load would not work thru the pan screens, the "dry dose" helping the pan to clear itself.

However, this method became extremely aggrevating because of the difficulty and inconvenience which it entailed; besides, the power and labor expense was excessive.

Later, a large storage shed was built on this particular plant in sheer desperation, a move which he had hoped would be consumated for several months. This step proved to be the solution of the problem.

Of course, additional pans would have solved the difficulty, but not economically. The storage shed for raw clay and a conveyor system was the correct solution.

Another method of overcoming the difficulty has occurred to us, namely, the tailings from the screen may be fed thru a tight roll crusher or a series of rolls. However, whether the product of this system could be used without rescreening, depends entirely upon the nature of the material and the fineness of the grain desired. It is problematical and we cannot answer it.

It may be possible to feed the product of the tailings crusher direct to the main elevator and, therefore, at no additional power or equipment expense, the ground tailings could be passed a second time over the screen.

We believe there are sufficient suggestions in the above

and ANSWERS

Best Authorities in Every Clay-working Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

---

rambling reply for our correspondent to secure a new hold on the question, if the points indicated have not already been tried.

⁂

Can Kiln Flues Be Cleaned by Vacuum System?

803. *Pennsylvania.—We have on our yard ten large rectangular kilns. We make hollow-ware and have to use a good deal of sand in the setting of same. This sand falls as we draw the kiln, filling the flues and compelling us to clean them every little while. Six of our kilns are of the double-flue type and the opening from the upper to the lower flue sometimes becomes stopped up and shuts off the draft. We believe that sometime ago we saw a suction cleaner shown in an issue of "Brick and Clay Record" and are, therefore, writing to ask for what information you can give us along this line. Is it possible to clean the flues in this way? Are there machines on the market for cleaning flues by air? If so, who makes them and about what is the cost of same? Kindly give us this information as soon as possible.*

Your first impression that there is a machine for cleaning out kiln flues, was probably received from the humorous article which appeared in the November 7th issue of "Brick and Clay Record" under the heading: "From Togo to Togo," and written by Wm. A. Butler; also an editorial appearing in the same issue.

For some time a certain large electrical equipment concern has been experimenting with a vacuum cleaner which it manufactures, to see if it could not be used for the removal of sand and other foreign materials from kiln bottoms. However, to date, nothing definite has been accomplished and, furthermore, we understand that a new difficulty has arisen; namely, that the sand would wear out the rubber hose of such a vacuum suction system, in a short time. No one, as yet, has gotten to the point where this difficulty has been overcome. In fact, some are inclined to believe that it is impossible to clean out a kiln bottom with a vacuum cleaner.

A new development in the solution of this problem has taken place recently. It has been brought to our attention that ashes are being removed from under boiler furnaces by means of a steam jet. Power plant engineers are familiar with this system of ash disposal and it is, therefore, nothing new. The novelty of the thing comes in its application to the removal of sand and bits of broken ware from kiln bottoms. One ceramic engineer states that it is perfectly possible to do this and to prove his point, he has promised to send us some data, which has not arrived as yet. We are, therefore, unable to say just how this can be done, but trust that this problem, which is proving to be of considerable interest to many ceramic engineers, will soon be solved.

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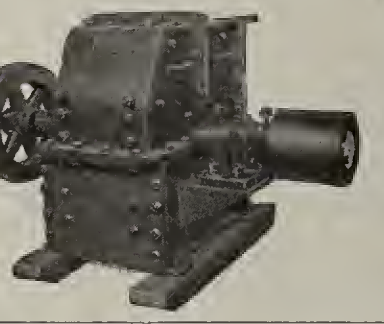

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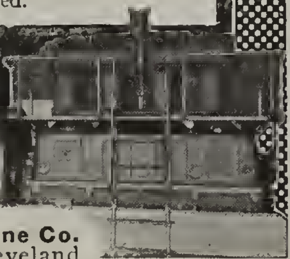

The Bruce-Macbeth Engine Co.
2134 Centre St., N. W., Cleveland

A Three-chamber Semi-continuous Kiln

801. *Wyoming—We are contemplating a number of improvements at our plant to bring it up to date. One matter that needs the most attention is the kiln proposition, and we have in mind a kiln which we think would meet the needs of a small yard very nicely, if it could be constructed. Inasmuch as we thought you would be in a position to let us know if such a kiln had ever been built, or could be, we are writing you in regard to the matter and to put it before you.*

We have in mind a three-chamber rectangular down-draft kiln, each chamber to hold about 100,000 brick and the two end chambers to have doors large enough to permit a team and wagon to enter for emptying same. The center chamber is to be independent of the two end chambers and is to have small entrance doors on each side. While these chambers are to be independent of each other, still we would want the kiln so arranged as to permit the waste heat to be taken from the chamber cooling and use it to watersmoke the chamber containing green brick. If slack coal could be brought into use for burning, this type of kiln would be a still greater asset to us.

After giving the above inquiry some careful thought, it is very evident that our correspondent is contemplating the erection of a semi-continuous kiln, a type that is used in a number of places thruout the country.

Our correspondent's idea is all right, but he would be foolish to attempt to erect a kiln of this kind without having the plans drawn by an expert continuous kiln man. The principles involved in the design and construction of a kiln of this type are exactly the same as those in a continuous kiln and this fact must be recognized if our correspondent wishes success in this operation.

We do not know whom to suggest for such work, but there are very few men in the country who could handle it successfully, we are sure. Our advice in this matter is to go slow, if our correspondent wishes to be sure that his investment is secure.

⁂

Has Trouble With Glaze in Bottom of Crock

804.—*We have considerable trouble in the manufacture of milk crocks (one item in our list of products) particularly in the glaze leaving the bottom of the crock. Our efforts to prevent this taking place have proved futile and we are, therefore, writing you, hoping to receive some information that will aid us in overcoming the difficulty. This parting of the glaze does not occur on all of the pieces of ware. Sometimes the percentage is greater than others. We use Bristol glaze, getting the best materials obtainable, and have used different formulas without being able to stop the trouble. In some of the crocks only a small place will be bare of the glaze and others will be bare over the entire bottom of the crock. We will state that crocks are the only item affected as we have never seen the same thing occur in other items, such as churns, jars, and so forth. Especially is this true of hand-turned ware. Our crocks are molded, as is much of the other types of ware we manufacture from the same clay. It is very rare to see the glaze leave the outside of the crocks, but on the inside, it will be perfectly bare of the glaze.*

From the information furnished us, our analysis of the above problem is as follows:

Parting or beading of the glaze is quite easily produced in this class of ware where the body consists of a fine grained and plastic stoneware clay. The fact that the trouble develops only on the inside bottoms of crocks shows that the glaze is just on the dividing line between a workable and non-workable glaze. Some peculiar condition due to shape, method of placing, or moisture conditions in the kiln cause the glaze to part in the instances where it remains sound on all other ware.

As a method of attacking the problem presented, we make the following suggestions:

1.—That care be taken to see that there is no oil or dust on the crocks, when dipped, which will interfere with the proper adhesion of the glaze.

2.—To so place the crocks in the kiln that the moisture from combined water driven off during the early stages of the burn does not condense in the bottoms of the crocks but has an opportunity to escape.

3.—That the following Bristol Glaze be tried to see if it will give any better results under present conditions:

Glaze Batch

Spar	64
Whiting	5
Zinc Oxide	11
*Clay	13
Flint	7
	100

4.—Try the glaze now in use, replacing in whole or in part the clays now used with Edgar Plastic Kaolin.

5.—If these preceding remedies do not cure the trouble, would suggest the use of a small amount of Dextrine in solution in the glaze used for the crocks. This sometimes holds a glaze together which tends to bead or part at about the time in the burning when it reaches the sintering or incipient fusion stage.

6.—To determine just when this trouble develops, if it will develop upon trial pieces as well as on the inside of a regularly placed crock, would suggest that after a crock has been dipped in the regular manner, it be cut up into sections with a suitable hole in one end of each piece for the trial rod and that these trial pieces be fired in a suitable receptacle or on a suitable support where they can be reached thru the kiln door. Draw trials at various stages of the burn to determine just when this peeling or separating of the glaze starts.

We trust that these suggestions will enable our correspondent to overcome his trouble and if not, will be glad to hear from him further.

* * *

The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

AN UNUSUAL CONDITION of prosperity is reflected thruout the Nation in the building records for November, which, in many instances, excel those which repre-

---

*Clay to be either all Edgar Plastic Kaolin from the Edgar Plastic Kaolin Company, Metuchen, New Jersey, or part ball clay, if the ball clay is found necessary to make the glaze adhere well.

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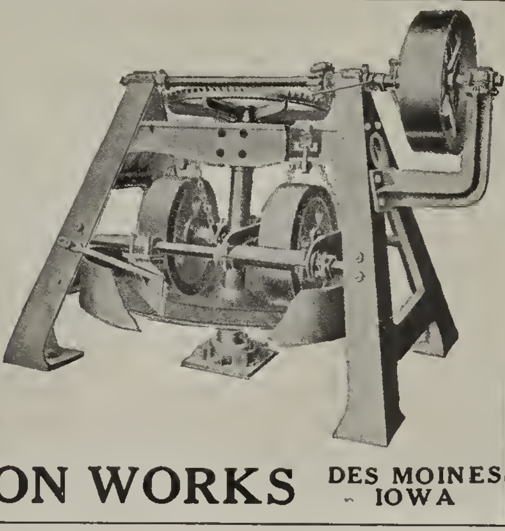
THE EAGLE DRY PAN



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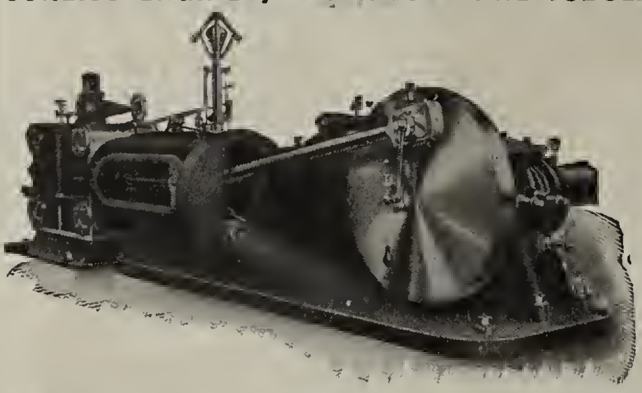

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sented the value of constructional work scheduled during preceding months. A very potential factor in the unusual activity enjoyed so far into the year, is the very favorable weather that has prevailed at most points of importance, allowing a large amount of work, which ordinarily would have been left over to the spring months, to be launched and completed.

The building permit record on the Pacific coast for the month of November presents the rather amazing fact that instead of falling off, building valuations have actually increased. These permits relate largely to work already under way or soon to start, and are not doubtful, distant assets. With the exception of the northern cities of Washington and Oregon where weather conditions are unfavorable to extensive building enterprises in the winter months, the permits on the coast point to an exceptionally late building season in California. Los Angeles' November permits totaled in value $1,494,518, as against $1,408,738 in October and $1,000,239 in November, 1915. San Francisco permits reflect a much greater increase in November building over that of a month ago, having a value of almost two million dollars as against one million in October and something under a million and a half in November, 1915. San Diego shows a slight falling off from October figures, but has chalked up an appreciable gain over November of last year. In Portland, Ore., the record that has been attained by November building is considerably in advance of that for the corresponding month of last year.

MIDDLE WEST CITIES SET LARGE FIGURES

Much the same prosperous condition prevailing along the western coast is enjoyed in the cities of the Middle West which, almost without exception, report an increase in the amount of building done during November of this year over that figured for the same month in 1915. St. Louis, for instance, reports building permits issued last month as being valued at $1,244,904, while those of a year ago tallied but $782,943.

CHICAGO FIGURES SURPASS THOSE OF BANNER YEAR

Evidence of the great activity in building during the present year in Chicago are found in the figures of building for the past eleven months, the total of which even exceeds that of the entire year of 1911—the city's banner year. For the eleven months of the present year the value of the permits taken out totals $106,982,650, representing 9,721 projects, while the value of building during all of 1911 amounted to only $105,000,000. As compared with 1915 there has been an increase of 23.35 per cent., the total value of the permits issued during this period amounting to $86,650,080. A slight falling off in both the value and number of the permits issued during November of this year, when compared to those issued in the same month of 1915, is to be seen in the reports which show 760 permits with a value of $10,056,100 during November, 1916, and 1,166 permits with a value of $10,861,600 for the corresponding period of a year ago.

KANSAS CITY BRICK PLANTS OVERSOLD

The unprecedented building activity in Kansas City, Mo., has placed the brickmaking industry of that city in a most healthy condition, the yards of those companies supplying this market being reported as almost entirely sold out. Overtime schedules are being followed on many plants in an endeavor to increase production in proportion to orders. The car situation is gradually tightening in this territory and the future is being looked forward to with a certain amount of apprehension by manufacturers of clay products, as well as other shippers. The increased price of coal is also constituting a check to capacity operations of plants in this section.

DETROIT SUFFERING FROM BRICK SHORTAGE

Despite the fact that there are some six thousand men employed by the twelve or more brick manufacturing companies of Detroit, Mich., working day and night, there are still, according to local contractors, many new houses standing at the "roughed in" stage because brick cannot be obtained to complete the work. While the daily capacity of the brick manufacturing plants of this city is rated at 1,000,000, the demand calls for at least 1,300,000 brick a day, and to keep up with the mushroom growth of that city, it has been necessary to ship in thousands of brick from outside points during the past few months. A difficulty has arisen within the past few weeks of unloading the brick shipped in, owing to what manufacturers, to whom the brick are shipped, term the inefficient methods of railroad yardmasters. In many cases, cars of brick have been switched around for more than two or three weeks and it was only with great trouble that they were located.

CLEVELAND'S LATE SPURT RAISES TOTAL

Building operations in Cleveland, Ohio, during November, 1916, aggregated $2,843,245, a gain of $408,530 over November, 1915. The net gain for the eleven months of 1916 over the same period of 1915 is $352,800, and indications are that last year's total of $32,660,305 will just about be equalled during the twelve months of this year, due largely to the fact that the value of permits issued during the latter part of this year took a spurt that offset the stagnation of the earlier months.

According to figures published by the Cincinnati building commissioner's office for the eleven months of 1916 up to December 1st business in the building trades had been in most respects better than last year, altho the total value of the work projected was less on account of the courthouse being included in the 1915 record. The number of permits up to December 1st, 1915, was 14,928, while that for the eleven months of 1916 was 15,040. The valuation of the work in 1915 was $12,912,223, while that of this year's work amounted to $9,830,035. The year, as a whole, has been an unusually good one, in spite of the rising prices and other handicaps.

COLUMBUS MAKES FAVORABLE SHOWING

Building operations for the past eleven months in the city of Columbus, Ohio, have exceeded in value those of the same period of 1915 by $2,183,815, according to the report of the building inspector's office. The total number of permits issued from January 1st to December 1st was 3,030, with a value of $6,951,900. During the same period last year, 2,737 permits were issued calling for an expenditure of $4,778,085. "This is the biggest year in the history of the department," were the words used by J. W. Dauben of the building inspector's office, to describe the situation.

TEN DOLLAR CHRISTMAS BRICK FOR NEW YORK

The brick situation in New York is resting, but all indications immediately before "Brick and Clay Record" went to press, pointed to not only ten dollar brick for Christmas but to price soaring conditions even after the ten dollar figure has been reached. But for an unexpected dumping upon the market of some six million brick, the ten dollar price would have started the week beginning

Keep the Heat in Your Drier

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

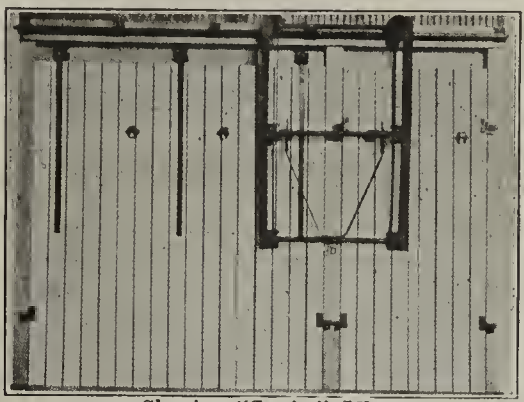
Perfected Dry Kiln Door Carrier

Will handle doors from 2' to 8' wide and 5' to 8' high. Made for wood or fireproof construction.

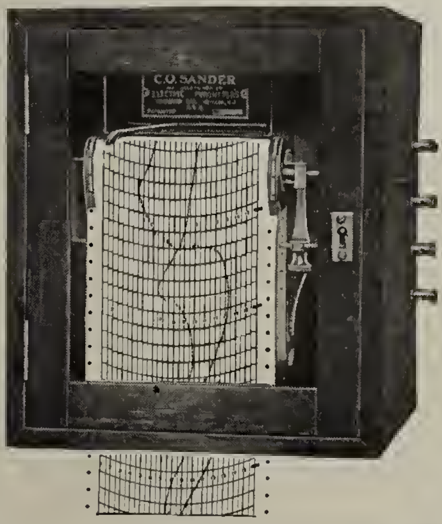
Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.



Showing "Carrier" Idle.



An Accurate Record

of the kiln's temperature—that is what you must have in order to secure an even burn. SANDER PYROMETERS guarantee accuracy.

The Sander Instrument Co.
136 19th Ave. Irvington, N. J.

WE CAN SAVE you 25% of your fuel bill. No money until we do it. Don't you think this worth a stamp? Then write to the

X. L. KILN & DRYER COMPANY
Box 269 Ottawa, Illinois

PERFORATED METAL SCREENS

As required for
BRICK
MAKERS
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Manufactured by
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PERFORATED SHEET METALS OF EVERY DESCRIPTION
HENDRICK MANUFACTURING CO.
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SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder. Has 10 to 12 times the heat insulating value of firebrick.

Produces absolutely uniform heat and reduces fuel consumption.

The reduction in rejected pieces will pay for the insulation in the first month of operation.

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Write nearest Office for Samples and Information.

WITH ENTIRE SATISFACTION

THE METROPOLITAN PAVING BRICK CO.
SAY Replying to your inquiry of Oct 30th, relative to "SERO" belt dressing, please be advised that we are using this dressing on four plants with entire satisfaction.
Yours very truly,
(Signed) O. W. Renkert
Vice-Pres. & Gen'l Supt.

Why not let us ship you on approval one 50 pound trial can. See for yourself just what "Sero" will do for your belts?

SERO SPECIALTY CO., CLEVELAND, O.
We also make "Sero" Gear and Cable coating and Manilla Rope dressing

MONEY—In Classified Ads

One man cleared $780 in one year from ONE "Brick and Clay Record" Classified Ad. His letter telling about it is in our possession.

Perhaps the Classified Ads in this issue contain a real gold mine for you. It won't take you long to find out. Each issue, these little ads are making money for somebody—watch for your opportunity.

BRICK and CLAY RECORD
445 Plymouth Court, Chicago, Ill.

December 11th, according to the best informed students of the New York market. Prices have held stationary in brick with the demand as lively as ever and promising to be lively for some time ahead. Sales at ten dollars have actually been made but $9.75 is the top quotation and $9.50 minimum. In Newark, the largest New Jersey market, prices are in excess of eleven dollars and the demand good. In some yards it begins to look as though the storing had commenced, but a glance at the average yard shows plenty of idle space. Truly, brick has gone like the proverbial "hot cakes" from manufacturer to barge and from barge right to building operations. The weather has been most favorable right up to the present writing and buildings have started for that very reason that might not have started until next spring. Having been started they will be pushed to completion and the pushing process will make business still better.

* * *

IN the WAKE of the NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Oscar Anderson, manager of the Anderson Brick Company at Sandpoint, Idaho, recently received word of the death of his father at Chetek, Wis. Mr. Anderson made the long cross-country trip to attend the funeral.

Richard Headly, formerly at the Hydraulic-Press Brick Company's plant, Brazil, Ind., was recently transferred to the company's plant at Porter, Ind., where he was given the position of superintendent.

F. G. Wilson, who for the last ten years has been associated with S. B. Bobbs, a prominent face-brick dealer of Philadelphia, Pa., has severed his connections with that firm to open an office of his own in the Hale building, under the name of F. G. Wilson and Company.

J. A. Bauer of the Bauer Pottery Company, Los Angeles, Cal., recently returned from an extended trip thru Honolulu. Mr. Bauer is now shipping a large amount of stoneware to that place, developing a new and promising market for this product.

M. Finley, formerly associated with the Independent Sewer Pipe Company of Los Angeles, Cal., recently resigned his position with that concern to accept the management of the St. Louis Fire Brick and Clay Company, succeeding C. W. Fuller.

Friends of Thomas Wonders, foreman of the Barr Clay Company, Streator, Ill., were grieved to learn of the death of his eight-year-old son, LeRoy, on November 25th, which resulted from injuries received by the boy when he was run over by an auto truck.

James F. Cullen, son of Peter Cullen, claimed to have been the first man to manufacture brick in Cleveland, Ohio, died at his home in that city on November 16th. He was fifty-seven years of age. Mr. Cullen was head of the Cullen Brick Company, founded by his father.

P. W. Raunut, formerly office manager of the American Terra Cotta and Ceramic Company at Terra Cotta, Ill., has severed his connection with that company, to accept a similar position with the Advance Terra Cotta Company at Chicago Heights, Ill.

West Virginia's oldest and youngest legislators have been re-elected. The oldest is the veteran Septimus Hall of New Martinsville, and the youngest is J. Ness Porter of New Cumberland. Mr. Porter is a brick manufacturer and was chosen to serve his second term in the house at the recent election.

James W. Rhoads, for twenty-four years a manufacturer of brick in Harrisburg, Pa., died recently of heart disease. At the time of his death, Mr. Rhoads was driving an automobile in the rear of which was a basket laden with good things for the Thanksgiving dinner of a poor family.

Jesse Taylor, president of the Ohio Good Roads Federation, died at his home in Jamestown, Ohio, on December 7th, following a brief illness. Mr. Taylor is credited with being the leader of the movement to get Ohio "out of the mud," thru state-wide speaking campaigns, and his publication, "Better Roads."

Peter McBean, president of Gladding, McBean and Company, San Francisco, Cal., has returned from an extended tour of the East where he visited a number of the most modern clay products manufacturing plants in the country, with the idea of incorporating certain improved features in the company's plant on the Coast when extensions become necessary.

It is reported that Albert B. Simonson, vice-president of the Lincoln Park Coal and Brick Company, Springfield, Ill., is soon to be made a member of the board of supervisors of Sangamon county. Mr. Simonton has been active in county politics for many years, and has held in the past the position of overseer of the poor, besides serving on the board several years ago.

Herman Schultz, pit foreman for the Oskaloosa (Ia.) Vitrified Brick Company, and Warren Moore, an employe of the same company, were badly burned when a charge of dynamite which was to be used for loosening up a portion of the shale deposit exploded prematurely. The extent of the injuries have not as yet been ascertained but, in spite of the fact that both men were very close to the exploded charge, it is expected that they will soon recover.

There has been an important change in the management of the Steiger Terra Cotta and Pottery Company, San Francisco, Cal., in the past month. L. A. Steiger, who for some years has been the manager, has resigned his post and is succeeded by L. R. Dennison, formerly superintendent of the company's plant in South San Francisco. The new manager is a son of Mr. Dennison, president of the company, and is exceptionally well qualified by experience and temperament for his new position.

Thru the generosity of Edgar L. Maston of New York, president of the Thurber Brick Company, and also a director of the Texas and Pacific Railway Company, Simmons College at Abilene, Tex., is assured of the construction of a modern equipped gymnasium which is to cost approximately $25,000. Mr. Maston donated $10,000 towards the proposed improvement and the Thurber Brick Company has offered to furnish free of all cost the brick necessary for the erection of the gymnasium building, together with the payment of transportation from its brick works at Thurber to Abilene. The value of the company's donation is about $12,000.

TAKING this hard blue shale out of a 60-foot bank is *some task* when it comes to a steady job—but so far this little Model 28 "Marion," owned by the Akron Brick and Tile Co., at Akron, Ohio, hasn't slipped up noticeably. What it *has* done is to

Increase the Plant Capacity, Producing a More Uniform Brick
—two things that you and every owner are looking for with both eyes.

There's no question that Marion Shovels *are* doing big things for brickmakers all over the country. That's because they're built for the job, carefully planned in advance by people who know what clay-digging requires.

Special Brick-Makers' Catalog A120 makes good reading; glad to send it, without obligation, on request.

Marion

We Make Excavating Machinery of Every Description

Branches:
Atlanta, Chicago, New York, San Francisco, Seattle

THE MARION STEAM SHOVEL COMPANY

Established 1884 **MARION, OHIO**

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THWING

HIGH RESISTANCE MULTIPLE RECORD

PYROMETERS

have again proven their merits

NOTE what this satisfied customer says:

"It gives us great pleasure to state that by the use of our Thwing Pyrometer Equipment, we were enabled to save in fuel alone, during six months, more than enough to pay for the installation and the equipment of same twice over, to say nothing of the satisfaction of knowing at all times just what heat we had in our kilns and improved quality of our product. In other words, your pyrometer has far excelled any hope that we had dared to entertain."

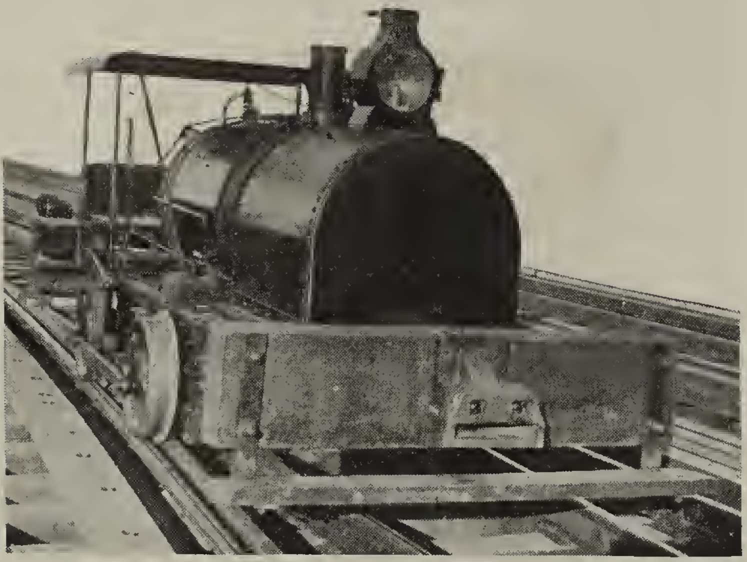
Further information on request. Send for copy of latest General Catalog, No. 8.

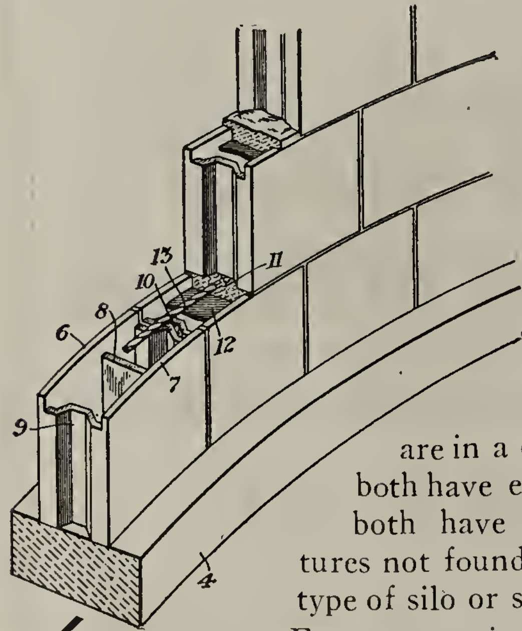
Thwing Instrument Co.

3336 Lancaster Ave. **PHILADELPHIA**

Kerosene is about 9c a gallon—why not use it to run a BELL Steam Locomotive on your job? —**Particularly** as you can dispense with a licensed engineer and pull 50% more than other steam outfits. **Furthermore**—the first cost of the BELL is lower.

Bell Locomotive Works, Inc.
30 Church St. New York City





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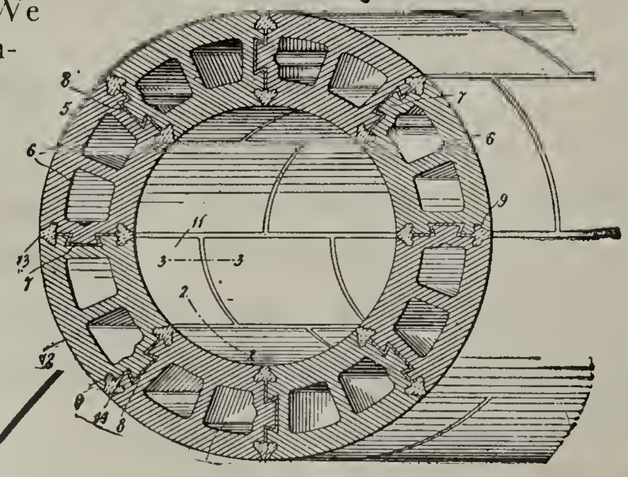
Silo and Segment Sewer Blocks

Both of these blocks are in a class by themselves; both have exceptional merit, both have patented features not found in any other type of silo or sewer block.

For your territory these types will produce new profitable business for you. We invite correspondence, looking to the sale of state rights for both blocks.

THE SOUTHERN PIPE AND CULVERT COMPANY
Macon, Georgia



Floyd Scoffern, for ten years superintendent of the National Fire Proofing Company's plant located at Ottawa, Ill., tendered his resignation recently, and has been succeeded by G. F. Fisher of Ohio. Mr. Scoffern's career in the clayworking industry at Ottawa has been an active one. Coming from Hobart, Ind., in 1904, he accepted the superintendency of the Twin Buffs plant of the National Fireproofing Company and in 1906 took charge of the Pioneer plant located in what is known as the hydraulic basin, Ottawa. Since that time, approximately $50,000 has been expended for improvements, and the capacity of the plant has been appreciably increased under his direction.

John C. McDonald, for more than thirty-five years a manufacturer of brick in Detroit, Mich., celebrated his eighty-second birthday on November 29th, at the farm which his father purchased in 1822 and upon which he was born in 1834. It is on this same plot of ground that Mr. McDonald is operating his brick and tile manufacturing plant which he started in the early 80's. The original tract of ground consisted of 260 acres but this has been gradually reduced to 97 acres, which Mr. McDonald now holds. Only sixty feet separate the tract from the city of Detroit, and the land for which Mr. McDonald's father paid four dollars an acre ninety-four years ago, is now valued at more than $3,000 an acre.

Arizona

The clay products industry in the Southwest is developing along modern lines, and the present materials produced are a far cry from the crude adobe bricks used for centuries by the natives. A new clay deposit to be developed soon is one near Globe, Ariz., which was discovered by A. W. Roberts, a contractor on the Arizona Eastern, who at present is conducting a railroad eating house. This clay is a peculiarly solid material, free from lime and other foreign substances, and it can be easily dug. Combined with a fire-clay which Mr. Roberts discovered some time ago near Fort Thomas, it can produce brick of very fine quality. The product will be manufactured in Globe. Machinery has already been ordered, and should be delivered within sixty days. It is expected that preliminary operations will be started about the first of February. Sample brick on exhibition have been productive of favorable comment by experts. The brick burns to a bright red.

California

The Independent Sewer Pipe Company of Tropico, Cal., has recently been taken over by L. Lindsay.

N. Clark and Sons, manufacturers of sewer-pipe, chimney-pipe and architectural terra cotta, and operators of a large plant in West Alameda, Cal., report an acute car shortage in their locality.

Interesting and attractive exhibits of burned clay products are being maintained in the Metropolitan building, Los Angeles, Cal., by the Atlantic Terra Cotta Company of New York City, the Pacific Sewer Pipe Company and the Simon Brick Company of Los Angeles.

The plants of the Mulford Brick Company located at Los Angeles and Montebello, Cal., were recently leased to the Montbello Brick Company, and according to present plans, are soon to be placed in operation. Both of these plants have not been operating for the past few months.

The Metallic Brick Company has recently been started at Kiota Pass, Cal., by M. Marks, manufacturing a sand mold product. W. L. Mulford, formerly with the Mulford Brick Company of Los Angeles, has severed his connections with that company to assume the superintendency of the new plant.

It is rumored that the Standard Brick Company of Los Angeles, Cal., is negotiating for the purchase of several plants in that territory, the operation of which will build up one of the largest outputs of brick in the western section of the country. Both face-brick and common-brick, it is said, are to be manufactured by this company.

Exhibits of brick, hollow-tile, terra cotta, sewer-pipe and other burned clay products are being maintained at Exposition Park, Los Angeles, Cal., by the Pacific Sewer Pipe Company and the Los Angeles Pressed Brick Company of that city, and Steiger Terra Cotta and Pottery Works of San Francisco.

The Los Angeles (Cal.) Pressed Brick Company recently requested the Board of Public Works of Los Angeles to consider a change in specifications so as to permit the use in city work of a new interlocking brick. According to the company, the new product is especially adapted to the construction of conduits, manholes and flush tanks.

C. F. Pratt, manager of the Pratt Building Materials Company, San Francisco, Cal., has secured the order to supply hollow-tile for the new Butler residence at Auburn, Cal., one of the finest private buildings in that part of the state. The San Francisco building ordinance allows this type of burned clay building material to be used for structures of two stories and, where buildings of no greater height are needed, the material is being specified by architects for high-class structures.

F. A. Costello, president of the California Pottery Company, Oakland, says it is almost an assured fact now that the company will build a paving-brick plant at Valley Springs, Calaveras county, in the spring. This is near the clay deposits from which the company makes paving-brick at the Oakland plant. The new paver has now passed the experimental stage, has stood the most drastic rattler tests and been used with success on a number of San Francisco streets. The company in the past few months has delivered forty carloads of vitrified sewer-pipe to Blanchard, the well known San Francisco street contractor. This is the largest single sewer-pipe order that has gone into the city for the current year.

Articles of incorporation have been filed by the Magnesite Refractories Company of Porterville, Cal., which is being organized with a capital stock of $200,000 for the purpose of manufacturing magnesite brick and other products. Chas. B. Stetson and J. L. Mitchell of San Francisco, together with F. J. Schuhl of Porterville, are incorporating the new company. H. S. Doyle, president of the Magnesite Mining Company, and E. J. Heinor, manager of the same company, are also interested in the enterprise. Work is to be started at once on the construction of a modern plant which will require an investment of about $150,000.

The Steiger Terra Cotta and Pottery Company, San Francisco, Cal., has just finished supplying the architectural terra cotta for the new Hall of Justice in Sacramento, a $15,000 job, and the terra cotta which this concern made for the northeast wing of the San Francisco City and County Hospital has just been put into place. Terra cotta has also been delivered to the new Jefferson School at Visalia. A new job signed up is that of furnishing terra cotta for a high

A
Merry Christmas
To You
Gentlemen
and may the
New Year
bring you a
KOPPEL
carload of profitable orders
ORENSTEIN-ARTHUR KOPPEL CO.

You won't have to worry about competition if you treat your clay with

R. H. Precipitated
Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

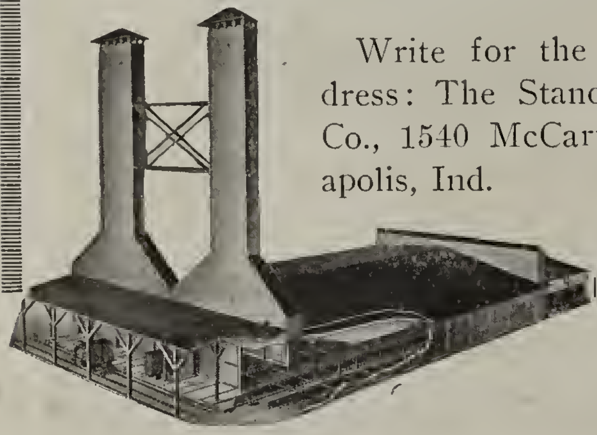
The Roessler & Hasslacher
Chemical Company
100 William Street New York
Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. East Liverpool, O. Philadelphia, Pa.
Boston, Mass. New Orleans, La.

A 30-YEAR SUCCESS

After thousands of years of drying brick in the open, an efficient time-saving method (in principle closely patterned after Nature's own) was introduced 30 years ago—The Standard Natural Draft Steam Drying System.

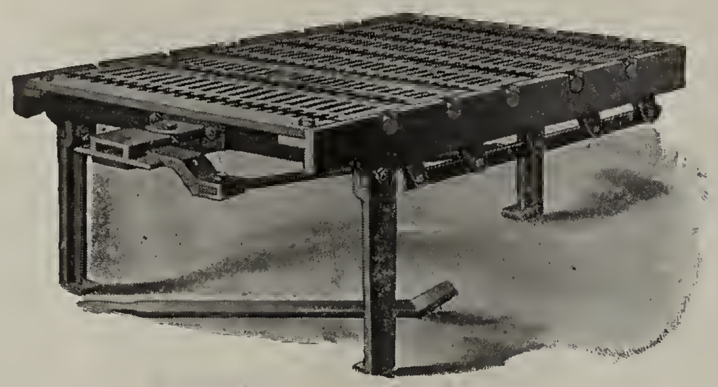
THE STANDARD DRIER

has been a prominent factor in the progress of the industry during the past three decades. The operator's absolute control of the drying elements makes The Standard adaptable for drying clays of *all natures* with complete success.



Write for the catalog. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Kiln Temperatures Controlled



The Canton Kiln Grate

A shaking kiln grate that provides an automatic method of keeping good, clean fires so that the furnace heat can be absolutely controlled, and therefore the heat in the kiln is under control.

In addition — it has never yet been installed that it did not save a great portion of the fuel bill.

The firemen like it because it isn't hard to clean and no open fire. It is easier to keep good firemen—if you have it. Get your information—now.

THE CANTON GRATE CO.
1706 WOODLAND AVE. CANTON, OHIO

school at South San Francisco. The entrance of this building will be constructed of "Thru-an-Thru" terra cotta, the new material being made by the company for high-class constructional work. The Steiger company reports a very heavy sewer-pipe business during the past summer, and it is stated that the demand is still considerable.

Colorado

Alderman R. J. Craig of Canon City, Colo., has recently become associated with the Jewett Fire Brick Company of the same city, and has been placed in charge of its office, which is located at Eleventh and Water streets.

According to current reports, a brick plant is soon to be started at Great Divide, Colo., by John E. Evans of that place, who is reputed to have already purchased the machinery and laid plans for its installation in time to manufacture brick in the early spring.

Delaware

The Refractories Manufacturing Corporation of Dover, Del., has filed articles of incorporation with the secretary of state. The capital stock of the new concern is placed at $1,000,000 and M. L. Gatchall, L. A. Erwin and Harry W. Davis are the Wilmington (Del.) incorporators. The new company is to manufacture brick, tile and other clay products.

Idaho

The first kiln of brick has been burned at the newly built plant of the Moscow (Idaho) Fire Brick and Clay Products Company. Constructional work will begin very shortly on a new large stack and two permanent kilns.

Illinois

The working hours of the employes of the Chicago Retort and Fire Brick Company, Ottawa, Ill., were recently reduced from ten to nine hours a day, with no change in the wage scale.

Fire which started from an unknown cause in the boiler room of the Illinois Brick Company's plant at Stephenson avenue and One Hundred and Nineteenth street, Chicago, Ill., on December 14th, caused a loss estimated to be about $15,000.

The newly incorporated Gates Fire Brick Manufacturing Company, Colchester, Ill., has completed the construction of its plant and is soon to begin operation, according to A. W. Gates, president. Judging from present indications, operations will be started during the first part of February.

A two per cent. extra dividend payable on December 20th upon stock of December 9th record was recently declared by the directors of the Illinois Brick Company of Chicago. This will make the dividends for the year aggregate eight per cent. and reflects unusually large earnings.

The plant of the Richards Brick Company at Edwardsville, Ill., will be operated to capacity thruout the winter, according to a recent announcement from Ben H. Richards. Two large orders, one calling for 800,000 brick to be used in a high school at Sullivan, Ill., and another for 500,000 brick to be used in the construction of an industrial building at Woodriver, Ill., are keeping the plant busy at present. Many improvements have recently been made at the factory which will increase and facilitate production.

It is rumored that the Illinois Steel Company is attempting to purchase a 160-acre tract of land in Goose Lake township, Grundy county, Ill., which contains extensive deposits of fire-clay. This fact is doubly interesting when it is known that the Chicago Retort and Fire Brick Company of Ottawa, Ill., is contemplating the purchase of a parcel of 480 acres of land in the same section, as has been noted in another item. A price of $60,000 for the entire tract is being asked or $7,000 a year on a royalty basis.

A contract was recently filed by the Chicago Retort and Fire Brick Company of Ottawa, Ill., for the purchase of 480 acres of land located in Goose Lake township, Grundy county, Ill., a deposit being made to bind the option on the contract. The company makes two options to the present owners, one based upon a royalty basis, and the other the proposal of outright purchase for the sum of $250,000. Officials of the company have verified the report of the contemplated purchase of the Grundy county land, but as yet it is not known whether, if the deal goes thru, the refractories manufacturing company will build a new plant on the property or ship the clay in to its Ottawa plant.

Indiana

Five of the ten clay products manufacturing plants operating at Brazil and Carbon, Ind., which have been affected by labor troubles that have kept the plants idle for the past four or five months, are again in operation. Many strikers have returned to work and a large number of laborers have been imported.

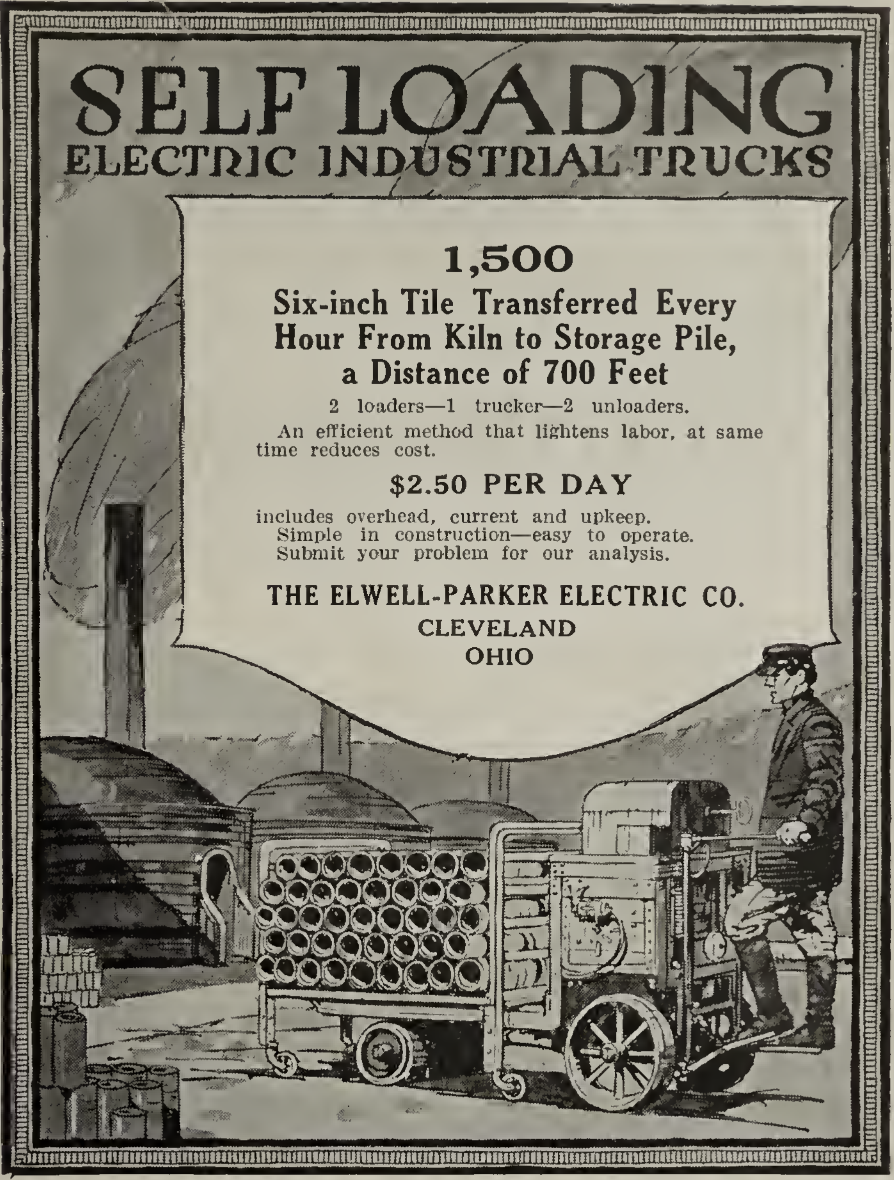
Several large orders have been received recently by the Clay Products Company of Indianapolis, Ind., which operates plants with large capacities at both Brazil, Ind., and Abingdon, Ill. The fire, moisture and soundproof qualities of hollow-tile won for this company an order for 500,000 tile to be used in a large exclusive apartment to be built in Chicago. Also, a contract has been signed with the American Telephone and Telegraph Company for 750 carloads of conduits to be delivered early next year. If placed end to end, the ware necessary to fill this order would make a conduit nearly 300 miles long. This is one of the largest orders ever received by a conduit manufacturer.

Iowa

We are informed in a recent letter from Herman Peter of Knapp, Wis., that the X. Y. Z. Brick and Tile Company of Eldora, Ia., of which he was the owner, has been dissolved. The plant of this company was destroyed by fire some time ago and was not rebuilt.

Twelve or fifteen employes were recently imported by the Lehigh (Ia.) Sewer Pipe and Tile Company to work on its plant. Labor shortage has interfered with the operation of this factory for some time, but it is expected that this number of additional men will facilitate the production of a capacity output.

The Grinnell (Ia.) Clay Products Company has been organized with a capital stock of $50,000 by parties who recently purchased it at public auction. The new owners will soon place the plant in operation manufacturing brick, drain tile and hollow building tile. The directors of the company are H. W. Spaulding, J. P. Lyman, W. F.


SELF LOADING
ELECTRIC INDUSTRIAL TRUCKS

1,500
Six-inch Tile Transferred Every Hour From Kiln to Storage Pile, a Distance of 700 Feet
2 loaders—1 trucker—2 unloaders.
An efficient method that lightens labor, at same time reduces cost.

$2.50 PER DAY
includes overhead, current and upkeep.
Simple in construction—easy to operate.
Submit your problem for our analysis.

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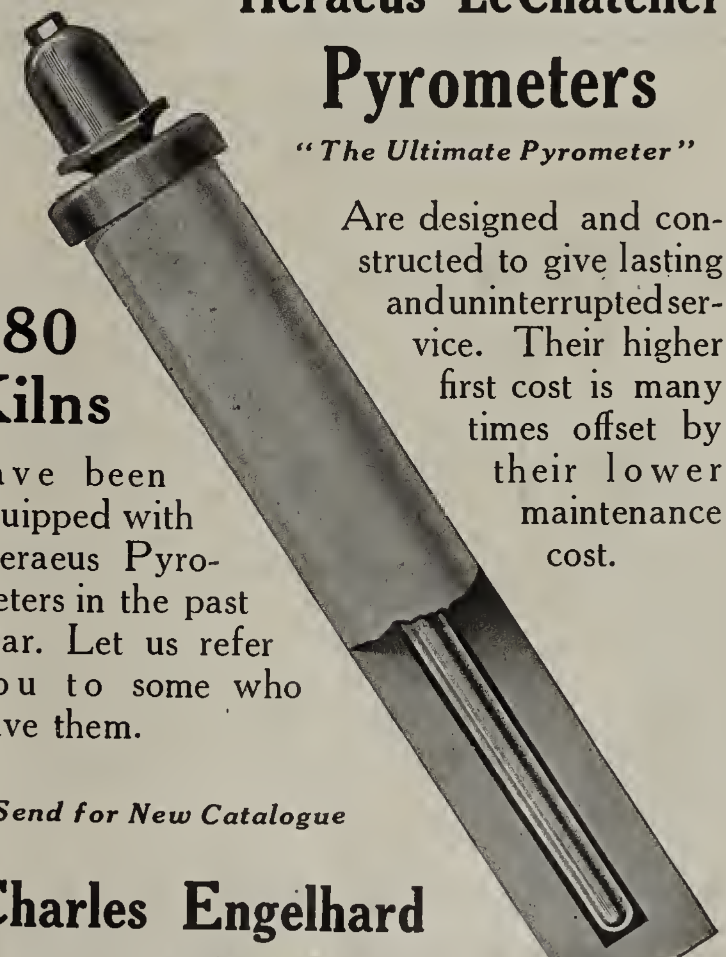
Heraeus LeChatelier
Pyrometers
"The Ultimate Pyrometer"

Are designed and constructed to give lasting and uninterrupted service. Their higher first cost is many times offset by their lower maintenance cost.

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Kilns
have been equipped with Heraeus Pyrometers in the past year. Let us refer you to some who have them.

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Charles Engelhard
30 Church Street
NEW YORK, N. Y.

EQUIPPED WITH WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

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THE BRISTOL CO. **Waterbury, Conn.**

Branch Offices: Boston New York Pittsburgh Chicago San Francisco

"BEATS THEM ALL" "BEATS THEM ALL"

HETTRICK RED STITCHED CANVAS BELTING

Water, dust, oil, intermittent loads, sudden jerks, over loads—all—are detrimental to belts; but Hettrick Red Stitched Canvas Belting, due to the care in selection of canvas, care in manufacture, care in curing—processing—inspection—stands up best under hard service.

It is made to LAST and give SATISFACTION. The best belting for clay plants. You don't have to take our word; just give us the opportunity to prove what "Hettrick" is actually doing.

HETTRICK MFG. CO.
TOLEDO, OHIO

Vogt, Paul Baler, R. A. Coutts, Grant Ramsey, C. A. Smith and T. J. Bray.

Kansas

The plant of the Fredonia (Kas.) Brick Company has been unusually busy during the fall season, operating to very near the full capacity. At the present time a large number of good sized orders are "fodder" for the plant, keeping it going at full blast.

The reconstructed and enlarged plant of the Buffalo (Kas.) Brick Company is now in full operation, and working to capacity to make up for lost time. The company recently finished the last of the new kilns and all attention is now centered on the production of a capacity output.

It is reported that some discrimination is being made by the state Utilities Commission of Kansas against the brick industry in favor of the coal interests by instructing the railroads of that state to grant more cars to the coal business at the expense of the brick industry. The cause for this discrimination may be seen in the general fear of a coal famine that is prevalent thruout the state, and also may have arisen as a result of the impression given to the commission by the coal interests that in the past the brick and gravel industries have been favored in the matter of cars.

Kentucky

The Fireproofing Appliances Company, Thomas L. Barret, manager, Louisville, Ky., is negotiating with certain manufacturers for an agency for architectural terra cotta to cover the Louisville territory.

"We are now enjoying a touch of this prosperity that is bearing good results in the building game," writes W. A. Buhlinger, secretary and treasurer of the Hill and Karnes Brick Company of Paducah, Ky. This company recently received what is reputed to be the largest order ever given to a west Kentucky brick company when it signed a contract with the Wilson Stove Company for 700,000 brick to be used in the construction of its large plant at Metropolis, Ill. With this order the number of brick the Hill and Karnes Company will supply for this project will pass the million mark.

A mine, producing a superior quality of clay, has been opened by the Owensboro (Ky.) Sewer Pipe Company on a tract of land near Hawesville, Ky. Test shafts around a large hill disclosed the presence of a vein of uniform thickness. An entry has been made and shipments at the rate of a car a week are now being made. The entry is being extended and propped, after which openings will be extended, a railroad switch built and the output increased to a much larger figure than at present. The business interests of Hawesville have become much elated over the discovery of the clay and are contemplating organizing a movement to establish a clay products manufacturing concern in the town. Mr. Clark of Cannellton, is reported to be a prospect and would move his pottery to the city.

Work on construction of a railroad spur three and a half miles long has been begun by the Paducah Clay Company. This will connect the mines of the company near Briensburg, in Marshall county, Ky., with the Nashville, Chattanooga and St. Louis railway at Benton, Ky., and will enable the company to load directly into the cars from the clay bank. The original plan of hauling from the mine to the railroad by team proved out of the question when a real demand for the company's product developed. With the standard gauge railroad completed, the company will be able to load and ship seven cars a day. Property owners along the route very readily provided the right-of-way over which the line runs. The company is finding a good market for its clay, shipping on large contracts to East Liverpool, Ohio, Trenton, N. J., and other clayworking centers.

The fag end of the year and the holiday season seem to have had a tendency to cause a slump in the demand for flower pots, according to a statement made at the plant of the Louisville (Ky.) Pottery Company recently. The florists have their storerooms filled for the time being with the fancy stock for the Christmas trade and, furthermore, will want the inventory period to pass without finding them stocked up on this class of goods. Orders on hand, however, indicate that there will be a brisk demand later. The jug business at the plant of this company, however, has been holding up well. A storage warehouse has been added to the factory and a new clay conveyor installed. The company has recognized the high cost of living, so far as its employes are concerned, and its good business by advancing wages all around, the increases averaging about ten per cent.

The Union Cement and Lime Company, Louisville, Ky., has announced the resignation of E. P. Teague, secretary and treasurer of the company, and the acquisition of Karl S. Markendorf, who will represent the company as salesman. He will take over the duties of Mr. Teague in the brick and building supplies department of the business. Mr. Markendorf was for some years with the Louisville Fire Brick Company, following which, until he joined the Union Company, he was connected with the James H. Button Company, real estate, as vice-president. He has a large acquaintance and experience in the city and its surrounding territory and his friends expect him to make a big record with the Union Cement and Lime Company. Mr. Teague, who had been for eight years with the company, the last three as secretary and treasurer, is considering a connection outside of Louisville.

Maine

The Portland Cement and Brick Manufacturing Company is the name of a new concern incorporated at Portland, Me., with a capital stock of $10,000 for the purpose of manufacturing and dealing in brick and other products. The president of the new company is Evangeline P. Swasey; treasurer, Ingram B. Wheelock, and the clerk is William Henry, all of Portland. The above, together with Thomas C. Bean are directors of the new company.

Massachusetts

Boston sales agents report an abundance of orders for brick of various grades and at good prices, but still experience difficulty in getting the orders filled. The manufacturers are unable to produce the brick as fast as their customers call for it. They also find it hard to keep the yard laborers contented, while the difficulty in securing coal adds to the troubles. Practically all of the brick yards in southern New England are still doing business, notwithstanding that it is almost the first of the new year. The weather has been unusually mild, enabling the operation of the plants to a later date than has been customary.

The problem of maintaining tight valves is most effectively solved --when you equip with--

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.

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80 White Street, New York. 524 Atlantic Avenue, Boston.
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REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.

54-56 Jefferson Ave.
Detroit, Mich.

THE SUCCESS of any Waste Heat Drying System depends on the Amount of Heat Taken from the Kiln in a Given Period—the Uniformity of the Heat Flow—and the Power Cost.

You will get Perfect Satisfaction if you Insist that no Other Fan be Used at Your Dryer Except the One that Has for Many Years Been the Old Reliable Standby on Hundreds of Brick and Tile Plants. Insist Always on the

"Sirocco"

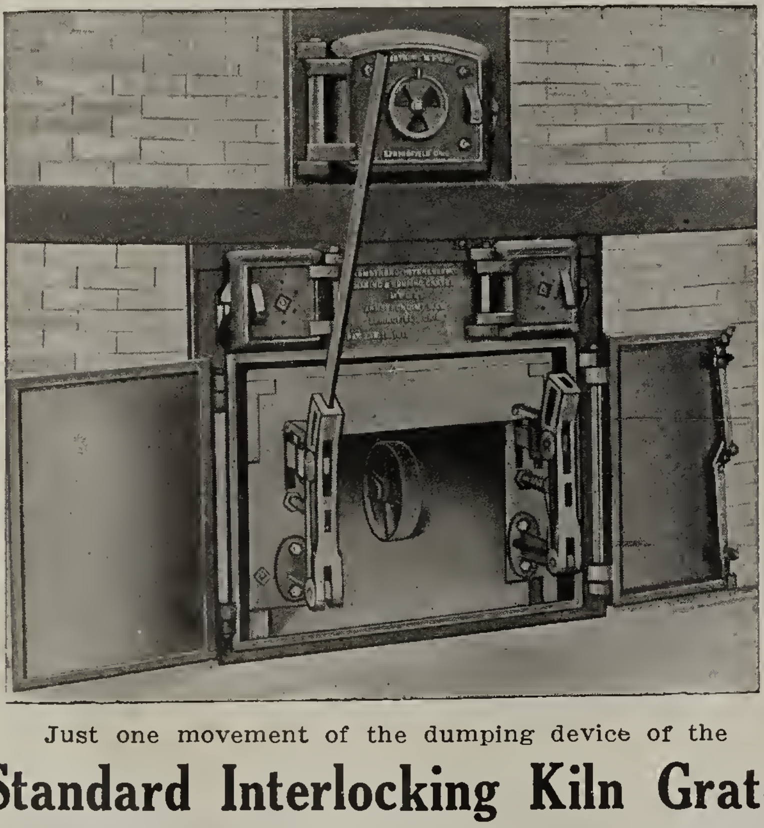
It's the Multi-blade Fan that Sucks Through a Maximum of Heat at a Minimum of Cost

Send for Our Book, "The Brick Dryer." It has a Lot of Valuable Information on the Drying of Clay Products. There is no charge for it.

AMERICAN BLOWER COMPANY

DETROIT MICHIGAN

BRANCHES EVERYWHERE



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

Michigan

Detroit (Mich.) contractors report a shortage of brick, despite the fact that six thousand men are working both night and day producing one million brick daily in the Detroit plants. It is estimated that the demand reaches fully 1,300,000 brick a day. According to estimates of local authorities, at least $52,000,000 will be spent in building houses, flat buildings and stores in Detroit alone this year and it is believed that similar construction in the suburbs will bring this total to $65,000,000.

Missouri

The Kansas Buff Brick Company with offices located in the Reliance building, Kansas City, Mo., reports that business for the past season has been extremely brisk, being sufficient to keep the plant working to capacity thruout the year. A number of large orders were recently placed on the books of this company.

Montana

Stockholders of the Roundup (Mont.) Brick and Tile Company at a recent meeting decided to make extensive improvements on their plant. The betterments are to consist of a tramway for conveying the shale from the pit to the plant, a number of permanent kilns and additional machinery. To pay for these improvements, the board of directors were authorized to issue more stock.

New Jersey

While business in the Perth Amboy and Trenton (N. J.) porcelain plants is reported as being good, it is announced that many more workmen are needed than are at present on the various payrolls because of the large contracts which are still being received.

The Sneyd Enameled Brick Company of Trenton, N. J., is now engaged in filling the many large orders which are on hand. The company is operating the plant formerly owned by the Trenton Fire Brick Company, which it has thoroly overhauled and in which has been installed modern machinery for the manufacture of enameled brick.

The Hackensack Brick Company of Hackensack, N. J., like almost all other clayworking concerns in that state, has been working to capacity the entire season, but now has the last burning in the kilns. The company has been very fortunate this fall, having little rain thruout October and all of November, which has enabled it to work continuously at least a month later than is ordinarily possible. While this concern has a good home demand, it has shipped a large quantity of brick to New York, Newark and Paterson.

The New York and New Jersey Brick Company of Kingsland, N. J., one of the few manufacturers of shale brick in the East, is preparing for an active selling campaign thruout the winter. This company has enjoyed a larger trade than usual during the past summer and closed the season with its sheds empty. William Krantz, the company's Paterson representative, has sold double the quantity of brick this year than he ever has before, and assuming that other sales agents have done as well, some idea of the growth of this company's business can be had.

The American Hollow Tile Company, recently incorporated at New Brunswick, N. J., for the purpose of manufacturing and dealing in brick, tile and other clay products, has purchased the brick manufacturing plant of R. H. Reed and Brothers at Highstown, in that same state, and is planning to place it in operation in the near future. Many improvements are being made, the work already having started on the construction of a thirty-two foot kiln which is soon to be followed by another of the same size. More drier tunnels are to be built together with a large storage shed.

N. Mehroff and Company, Hackensack (N. J.) brickmakers, have about closed their business for the season. Like a great many other like concerns, the company has been hampered this year because of a lack of help. It succeeded in getting some employes from the South, but they left at the first sign of frost. This firm, among others in Hackensack, has considered the advisability of hiring Mexicans, but no decision was ever made. This concern's capacity is about five or six million brick a year and this year it has operated to full capacity all of the season. Its shipments go principally to New York, with occasionally a few cargoes diverted to Newark.

N. H. Sloan, Paterson (N. J.) representative for the Conkling-Armstrong Terra Cotta Company of Philadelphia, has done a larger business in this product during the past twelvemonth than in any previous year since he has handled it. Mr. Sloan has just closed a contract for the use of this company's material in a large business building in Paterson, which is but one instance out of many where he has succeeded in placing its product successfully in competition with others. The quality seems never to be questioned and this has lead to a rapid development of business in all of the varied products the Conkling-Armstrong Company manufactures. E. N. Conkling, secretary and treasurer of the company, is in charge of the New York office and reports that the business everywhere has grown in the same way.

New York

The Garner Brick Works of Haverstraw, N. Y., is closing the most successful "summer" season in its history. While the yard usually operates all of the year, it naturally does more business in summer than in winter. The company is closing the season with every brick sold and orders ahead which will keep it running for a long time to come. John Peck, the hustling superintendent, is worrying over the question of help. When the cold weather threatened, the employes which he had secured earlier in the year from the South, left for their homes immediately, and it has since been quite impossible to fill their places. The company's business has grown very fast this past year in spite of the difficulties in getting suitable help.

North Dakota

Timms, Cress and Company, Portland, Ore., are delivering 300,000 Hebron (N. Dak.) brick for a new auditorium in Portland. The brick replaces one of local manufacture found to be unsuitable for the peculiar purposes of the building, and costs forty-one dollars a thousand.

The North Dakota Pressed Brick Company recently started the manufacture of "Natco" hollow-tile at its Dickinson (N. D.) plant. W. J. Elliott, manager of the company, completed the negotiations with the National Fire Proofing Company a short time ago and expects that a large portion of the company's output will soon

Tycos
FERY RADIATION
PYROMETERS
Eliminate Guesswork from the Manufacture of All Products requiring extremely high Temperatures ★ ★ ★ ★

We Manufacture - Thermometers and Instruments covering every Temperature requirement in Metallurgy and Chemistry

A Catalog Cheerfully Sent Upon Application

The Taylor-Cambridge Division
Taylor Instrument Companies
Rochester, N.Y.

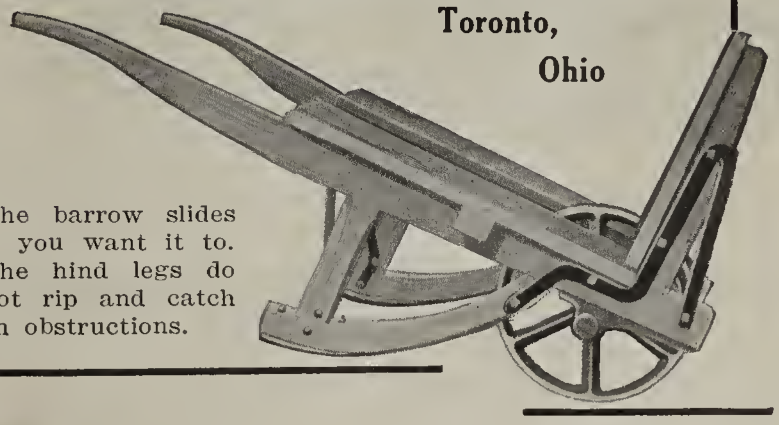
YOU CAN'T DO THIS

You can't get the kilns unloaded on time—You can't prevent the accumulation of demurrage on cars—You can't have satisfied hustling wheelers—

Unless You Have a Fleet of Invincibles

These wheelbarrows are perfectly balanced; when the load is on and the handles are lifted at least 90% of the weight is on the axle, the other 10% is on the hands, just enough to steady the wheeler. The axle is under the load, not at one end of it.

The Toronto Foundry and Machine Co.
Toronto,
Ohio


The barrow slides if you want it to. The hind legs do not rip and catch on obstructions.

bear the widely known "Natco" trade-mark. Already an order for four hundred cars of this product has been received by the Dickinson company from the National Fire Proofing Company for shipment to points thruout the country within the next eight months. This, however, is considered simply a preliminary order, to be followed shortly by a standing arrangement for the purchase of the company's entire output.

Ohio

The capital stock of the Toledo (Ohio) Vitrified Brick Company has been increased from $50,000 to $65,000.

W. D. Brickell, president of the Ironclay Brick Company, Columbus, Ohio, has just returned from a trip to Cuba, where he has a large tobacco plantation.

The Cambridge (Ohio) Brick Company has been incorporated with a capital of $10,000, to manufacture brick and clay products. The incorporators are: H. C. Callihan, Harry Bell, Chas. F. Baughman, F. E. Stottlemire and Clarence H. Stemm.

The biggest December in the history of the business is expected by the Cleveland (Ohio) Builders' Supply Company. Every department is rushed to capacity, and all materials are in demand as never before at this time of year.

Fire recently swept the plant of the Ohio Valley Brick Works at Toronto, Ohio, causing a loss of about $40,000. As yet no definite plans have been made for its reconstruction. About one hundred men have been thrown out of employment by the burning of the plant.

The Akron (Ohio) Tile and Fireplace Company has been incorporated with a capital stock of $10,000, to manufacture and deal in tile and fireplaces. The incorporators are: Philip B. Treash, Charles C. Benner, A. H. Commins, Blanche E. McDowell and D. H. Holloway.

Litigation at Athens, Ohio, over the promotion of a brick concern known as the Dias Paving Brick Company, has resulted in one of the parties being bound over to the grand jury on a charge of fraud. The conveyance of one hundred and twenty-six acres of land near Athens, valued at $10,000, is involved.

Clinton Cowen, Ohio Highway Commissioner, will receive bids until December 21st, on several sections of highway to be paved with brick, including the Dixie Highway in and around Cincinnati, various types of filler being included in the specifications in order to give the widest latitude to the contractors in their bidding.

The plant of the Nelsonville (Ohio) Brick Company was closed recently for a short period because of the breaking of a large drive shaft. The necessary repairs have been completed and the plant is again in operation. It will probably be closed down in January to make general repairs, as has been the custom of the company for years.

The Pursell-Grand Company of Cincinnati, Ohio, has been doing unusually well with hollow-tile this year. Recent orders secured include one amounting to 50,000 pieces for the new Rose Hill apartment, 40,000 for the German Mutual Fire Insurance Company building in Covington, Ky., 200,000 for a Covington high school and 50,000 for the Clinton theater at Wilmington, Ohio.

On December 2nd, the Ohio Valley Brick Works at Toronto, Ohio, was destroyed by a fire which is thought to have originated in the drier. The loss is said to

The Pyrometer With a Conscience
None Other Than Beighlee's

There are so many good and sufficient reasons for this descriptive name that it is impossible to list them here.

Suffice to say that it is always, constantly accurate, due primarily to the big dial, the high internal resistance and the compensating error device.

The Beighlee is chosen by the men who know, because they know it is best. Have you our new catalog?

Beighlee Electric Co.
Cleveland, Ohio

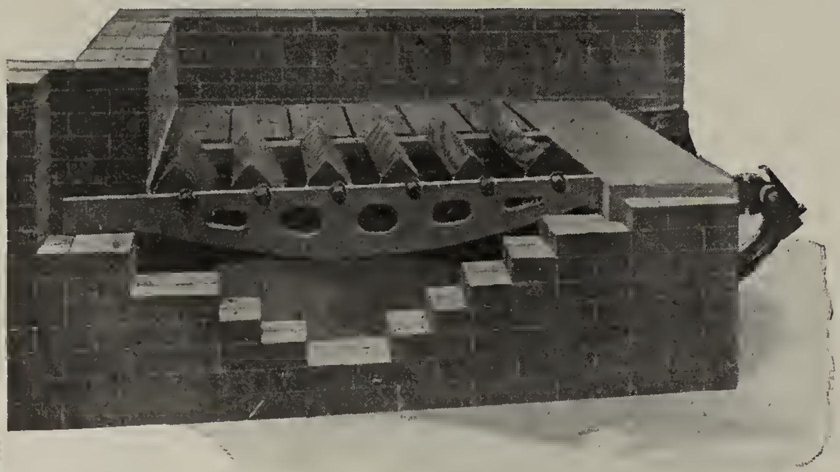
Herman A. Holz, Hudson Terminal Bldg., New York. Representative in New England States.

CYCLONE BOILER GRATES

are being installed by clay-products manufacturers because of their superiority and the 90-day trial period, which gives the chance to prove out our claims.

These are the six points of superiority:
1. Even distribution of draft.
2. No fuel gets into the ash pit.
3. Locks level.
4. Burns cheap fuel.
5. No fingers to burn off.
6. Impossible to warp.

Ask us to PROVE it



Cyclone Grate-Bar Company
BUFFALO, N. Y.

amount to about $60,000. One hundred men will be thrown out of employment permanently, so far as this plant is concerned, as it is understood the works will not be rebuilt. The property belonged to the American Sewer Pipe Company.

J. M. Adams, secretary and general manager of the Ironclay Brick Company, Columbus, Ohio, reports a good demand for brick, considering the lateness of the season. He says: "Prices are advancing, as is necessary under existing circumstances. The labor shortage is getting worse and the same is true of the car shortage, both of which militate against the progress and prosperity of the industry. The prospects, however, are excellent for the coming year."

The two routes of the Dixie Highway in Hamilton county, Ohio, are to be improved with brick, according to a recent decision of the county commissioners and the State Highway Commissioner. The Carthage-Hamilton pike, as the highway referred to is generally known, will be paved at a cost of $135,000, while the improvement of the Cincinnati-Hamilton pike, another route, will involve an expenditure of $184,176. Bonds will be issued to defray the county's share of the expense, and bids will be called for shortly.

Advances in the price of face-brick and other clay products are now the rule in Ohio. During the past fortnight many factories have announced increases ranging from one to two dollars, and still further advances are promised unless the rapid rise in the cost of manufacturing is not stopped immediately. It is now absolutely necessary that manufacturers get more money for their product, if they hope to continue business. Advances in labor and supplies, together with increased cost of workmen's compensation and all overhead expenses, have taken place in the past year.

The cold snap which descended upon Cincinnati, with the rest of the Ohio Valley, during the second week in December, put an end to outdoor operations, both at brick plants and with builders, for the time being. Most of the manufacturers have closed down for the winter season, with ample supplies to take care of the demand during that period. Builders intend to keep going all winter, however, and salamanders and steam and hot-water lines are in general use. Dealers report a marked let-up in the demand for brick and other materials, indicating the usual withdrawal of prospective builders from the market until spring.

Charles Harrison of the Gaddis-Harrison Brick Company, Columbus, Ohio, reports a rather quiet market as the building season is about over for the year. He says: "There are still quite a few small jobs on hand which are attracting attention. The car supply is getting worse, and as a result, shipments are delayed. The prospects for next year are good, according to my opinion, and I believe that there will be a strong demand for brick of all kinds. There seems to be less brick on the yards of the manufacturers than at this time last year and prices are stiffening gradually. Common-brick especially is getting scarce in this territory."

Charles Frank, salesmanager of the Nelsonville (Ohio) Brick Company reports the season for paving-brick as being about over. He is now devoting most of his attention to cleaning up orders and getting reports from cities and counties where work was in progress. He reports that most of the jobs have been completed, altho a few will lay over until the spring of 1917. Mr. Frank

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE
R. D. WOOD
AND COMPANY
Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company
400 Chestnut Street - Philadelphia, Pa.

—SICK BURNS—

Do YOU Ever Have Any?

HOOK DOWN DRAFT KILN USERS DON'T!

Easy to say, but a joy if you can back it up. **WE CAN.** Nice uniform burns always, with a big percentage **Less** coal than ordinarily used and is **LESS** than the ordinary time—frequently half.

Like everything good, it's simple. The answer can be given in a word—**Distribution.** The heat isn't led to the outside by the shortest possible route, but evenly distributed and held in the kiln, without cutting the draft, as you do when you drop the damper at the stack.

A well-known Ceramic Engineer once said that if he could, he would like to put the damper just below the floor. That is the effect the Hook Down Draft System produces.

In the past five years, many clayworkers have tried it out and like it. Dozens of plants now use this system, many exclusively. It costs only a stamp to investigate. IF IT'S GOOD, YOU WANT IT.

When you write—today—give us the number and size of your kilns, your present burning time and fuel consumption and we can estimate the saving which the **Hook System** can make for you.

HOOK PATENT KILN CO.

614 Commerce Building
COLUMBUS, OHIO

Kiln Bands, Grate Bars and All Accessories

looks for a fairly busy season next year as quite a few of the bond issue propositions have been O. K.'d by the voters. The coming month will be taken up with the letting of contracts for spring work. The first paving contract to be awarded in Ohio is at Sidney.

The Samson Brick and Clay Company of Cleveland, Ohio, was recently incorporated with a capital stock of $50,000 to manufacture brick, and has already placed its newly acquired plant at Fredericksburg, Ohio, in operation, manufacturing 20,000 brick a day. The new company purchased its plant from a brickmaking concern located at Fredericksburg, near Wooster, and received in the transaction an old coal mine which it intends to clean out and work. The incorporators of the new company are Frank Nutting, D. H. Adolph Pritschau, Frank C. Smith, Alexander Pako and William H. Balhorn.

Cincinnati union bricklayers are asking for an advance in wages of five cents an hour, effective in May, 1917, when the present agreements with brick contractors expire. The existing scale is seventy-five cents an hour, attained when the employers granted a voluntary increase of five cents early this year; but the contention of the bricklayers is that the high cost of living warrants another increase. It is understood that foremen will ask for one dollar an hour. As several months remain in which to consider the new demands, no announcement has yet been made of the action to be taken, but it is probable that a new cost will be added to construction.

The Union Gas and Electric Company of Cincinnati, Ohio, has awarded to the Foundation Company of New York, the contract for the construction of the superstructure of the former company's great new power plant on the Ohio river, which is intended to serve the city and vicinity for years to come. The Foundation Company handled the foundation work on the plant, and was in a position to land the superstructure contract, which amounted to about $300,000. As the work will involve the use of several million brick, it has been closely watched, and Cincinnati brick men are going after the material end of the job vigorously.

Arrangements are being made to consolidate the sales offices of the Nelsonville Brick Company and the Hocking Valley Brick Company, both concerns making paving-brick. Some time ago a deal was concluded, as was set forth in a previous issue of "Brick and Clay Record," merging the two companies, altho their sales organizations have been conducted separately. Now it is proposed to combine both after the first of the year, headquarters probably being maintained at No. 8 East Broad street, Columbus, Ohio, where the offices of the Hocking Valley Brick Company are now located. Charles Frank is salesmanager of the Nelsonville Brick Company, and W. W. Morrow for the Hocking Valley Brick Company.

A large number of the Columbus (Ohio) face-brick manufacturers, dealers and salesmen attended the convention of the American Face Brick Association at French Lick, Ind., during the early part of the present month. Among the number were: J. M. Adams, secretary and general manager of the Ironclay Brick Company; L. C. Kilbourne, president of the Columbus Brick and Terra Cotta Company; W. H. Hoagland and Emmet Howard of the Claycraft Brick Company; Robert Dingledine of the Columbus Contractors' Supply Company; Daniel Reagan, president of the Hocking Valley Products Company; John Martin of Straightsville; Charles Harrison and LeRoy W. Gaddis of the Gaddis-Harrison Company, and others. All of the Columbus brick men reported a very interesting and instructive meeting.

Oregon

The Molalla (Ore.) Fire Clay Company has recently been incorporated.

According to data compiled by Labor Commissioner Hoff of Salem, Ore., sixty-eight brick and tile plants operated in that state last year, and furnished employment to 154 skilled and 150 unskilled workmen. The total value of all the plants amounted to $866,400.

Pennsylvania

Reports which were current a short time ago that the plant of the Haws Brick Company of Johnstown, Pa., had been purchased by the Midvale (Pa.) Steel and Ordnance Company in a deal that approached the million-dollar mark, have been contradicted by parties interested. It was stated, however, that a combination of capitalists of Philadelphia and Pittsburgh were dickering for the plant which, if successful in its attempt to acquire the property, contemplates enlarging it and building an additional factory at Lewistown, Pa.

The development of an extensive deposit of clay, which has been analyzed and found to be of an unusually high grade, located at Allentown, Pa., will soon be undertaken by H. C. Trexler and George K. Mosser of Trexlertown, Pa., who are building a large brick and tile manufacturing plant at the former place. Already the work of grading and excavating has been started and work upon the railway sidings that are being laid to the plant is now proceeding. It is understood that a large amount of hollow-ware will be manufactured when the plant is placed in operation, since no other plant at this point is producing that commodity.

Rhode Island

Contracts have been let for enclosing the clay sheds and side tracks at the plant of the Ashaway (R. I.) Clay Works, and the making of other changes which will enable the proprietors to continue the manufacture of brick thruout the winter. There has been a big demand for Ashaway brick since the plant was re-opened some months ago, under Manager Marsden, and present orders will keep the yard operating most of the winter.

The Providence (R. I.) Brick Company has leased a tract of land comprising 100,000 square feet, from the city of Providence for a term of fifteen years, paying $1,000 a year. The land is located at what is known as Field's Point, near the sea wall, and consists largely of a hill of considerable size. The brick company proposes to cut away this hill, using the material in the manufacture of its ware, and expects to have it entirely leveled by the time the lease expires.

Texas

T. H. Harwood of El Paso, Tex., after several months of negotiations, has purchased the Alhambra brick plant located a few miles northwest of Phoenix, Ariz. The daily capacity of the newly acquired plant is rated at 40,000 brick, and equipment is also on hand for the manufacture of tile. Mr. Harwood is already owner of three other brick plants located at Torreon, Monterey and Victoria, Mex., all of which are now idle due to the condition of unrest in this republic.

GANDY and Gases

"We are pleased to advise you that the Gandy Belting we have been using for some time in our forging shop has given us excellent satisfaction. We use it in places where it is exposed to the heat and gases in preference to anything else we have ever tried. We would recommend it to anyone being obliged to expose a belt to such conditions."

The gases common to some manufacturing operations and so unavoidable in many plants, are exceedingly harmful to most belting.

This latter shows what action a manufacturer should take when he learns that such conditions are shortening the life and service of his belts.

Aside from being advantageous in duties such as this, GANDY Belts are equally superior in conditions where oil, steam, water, heat and dust are encountered.

Gandy Belts in all kinds of belt service, live up to the reputation for dependable service that they have gained in 39 years. They are ready to prove themselves dependable in your work—and save you money at the same time. Prices, samples and full information sent upon request.

The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

SAY "I SAW IT IN BRICK AND CLAY RECORD"

The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men—in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.20
Brick Drying (English edition)	1.00
Brick Houses and How to Build Them	1.00
Bricklaying, Rudiments of Practical	.60
Bricklaying System	3.00
Brickwork and Masonry	3.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	4.50
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.00
Clay-Working Problems	1.50
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Glazer's Book	1.00
Hollow Tile Houses	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.25
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.40
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Effloescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

If the book you want isn't here ask us to get it.

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval.

Address, Book Department,

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.

Utah

The new fire-brick plant recently built at Murray, Utah, by the Utah Fire Clay Company is soon to be placed in operation. More than $25,000 have been spent in the construction of this factory.

M. R. Deppe, manager of the Smithfield (Utah) Brick and Tile Company, reports conditions as exceedingly optimistic, the outlook for the winter business being especially good. This company is now busy filling an order for one million brick to be used in the construction of a sugar cane factory being built about four miles from the company's plant.

Washington

J. M. Perry of North Yakima, Wash., has decided to use brick instead of concrete for the construction of a $50,000 addition to his present cold storage warehouse. He has ordered 250,000 brick from the Granger Brick and Tile Company.

Wisconsin

The plant of the Philipp Schnell and Sons Brick Company of La Crosse, Wis., which was started in 1884 by its present president, Philipp Schnell, has had a steady growth since its early introduction upon the list of clay products manufacturing plants. The plant has a daily capacity at the present time of 50,000 brick as the result of the installation of a new machine which the company purchased recently, and supplies practically all of its output to the city of La Crosse. According to John Schnell, secretary and general manager of the company, 1916 has been a banner year, during which period the plant was operated to capacity. Charles Schnell, another son, is treasurer of the company.

Wyoming

The brick manufacturing plant of Charles Galusha, located at Gasper, Wyo., has been taxed to capacity during the past season supplying an unprecedented demand and, in some cases, it has been impossible to handle all the business without working on a double schedule. The great building prosperity thruout this section of Wyoming is absorbing an unusually large amount of burned clay materials and indicates a need for an increase in the capacity of the plant during the coming year. Mr. Galusha is also owner of the brick plant located between Basin and Greybull, Wyo., and is contemplating the construction of another plant at Lovell, Wyo., in the near future.

* * *

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

Charles C. Ashbaugh, president of the West End Pottery Company of East Liverpool, O., who was recently elected president of the United States Potters Association, has served in every office of the association. He was first elected secretary-treasurer of the organization, then third and second vice president respectively. He has just jumped from the second vice presidency to the presidency, and is the only manufacturing potter who ever went "through all chairs."

The great cry of the whole manufacturing pottery trade today is "more mechanical appliances" not only in clay shops, but wherever such an improvement could be installed. It has been said more than once in the Ohio pottery district that improvements along such lines as these will have to come, sooner or later. Then the production of the domestic potteries throughout the country will be increased.

An effort is being made by the potters of Mercer county, N. J., to secure a new and larger organization than at present exists in that section of the country. It is planned to make this association one of the best of its kind in the country and to this end, a movement is on foot to have all of the minor organizations within a radius of twenty-five miles of Trenton connected therewith.

In addition to the $50,000 tile plant to be erected at Daisy, Tenn., Hoods Pottery Clay Products Company is remodeling a plant at Melville in the same state for the manufacture of acid-proof stoneware and vitrified floor tile. B. Mifflin Hood of Atlanta, Ga., is president of the company.

Members of the Perth Amboy (N. J.) operative potters' organization will be hosts shortly to the members of the Sanitary Pressers' Association of Trenton. The Trentonians have been guests of the Perth Amboy organization on several occasions in the past, but are taking their turn this year in playing the host.

Plans advanced during the past year to erect new potteries at Massillon and Alliance, O., never materialized. In each instance East Liverpool, O., and local interests in the towns mentioned were back of the movements. Unusual conditions within the trade are said to have caused the collapse of both movements, for the time being at least.

Operations at the new plant of the Southern Potteries Company, at Erwin, Tenn., will start within a few weeks. This new concern is under the management of Edward J. Owen, formerly of East Liverpool, Minerva, O., and Paden City, W. Va. A general line of dinnerware and specialties will be featured by the new company.

The former plant of the LaBelle Pottery Company at Wheeling, W. Va., which was last operated as a general ware factory by the former Wheeling Potteries Company, has been sold to the Wheeling Tile Company, which concern has been operating the property under lease for several years.

W. H. Burfoed, who for the past six years has been general manager of the United States Pottery Company, at Wellsville, O., will retire from that position January 1st, to enter business for himself. The name of his successor has not been announced.

An additional kiln is to be placed in operation at the plant of the Wylie China Company, at Huntington, W. Va. Improvements in the clay shop at this plant will be so arranged that the capacity of the plant will be augmented to meet present requirements.

So heavy are advance orders with domestic pottery manufacturers, that in many instances, deliveries sooner than may 1st next are not being guaranteed. In other words, American potteries are virtually "loaded with business."

Andrew Nelson, for years manager of the Fords Porcelain Works and one of the best known clay plant executives in the Perth Amboy (N. J.) district, died at his home in Fords, N. J., on December 9th.

Westinghouse Motor Driving a Dry Pan

Why Individual Motor Drive Is Best

No. 1

Throw off the belts from all machines and test the power it takes to operate the line shafts—you will be surprised to discover what a large percentage of power is wasted.

Westinghouse Motors

with central station power—saves power bills—when the motor stops the power cost stops—machines can be arranged so that handling of materials is reduced to a minimum.

A card brings Booklet 3072

W WESTINGHOUSE ELECTRIC

Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.
Sales Offices in All Large American Cities

The Salt Lake Pressed Brick Company is finding nothing lacking in the all-round performance of their KisselKar Trucks.

Their ease of operation, their durability and resiliency—the tremendous power of the Kissel-built engine—insure delivering and hauling more brick in shorter time and at a lower cost per mile per ton.

You, too, will find KisselKar Trucks 100% efficient. Built in a range of capacity sizes that insures the exact size for you.

Send for truck information and data on KisselKar Truck performance in the brick and clay products field.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns

Six sizes from the 1500 lb. Delivery up. Chassis prices $950 to $2850.

KisselKar Trucks

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Tanks

All clay plants, with the possible exception of dry-press plants use water as a definite necessity in manufacturing. Clays worked by the stiff and soft mud processes must be pugged or tempered with water, and in a week's run this amounts to thousands of gallons.

In addition to this special need the plant uses water for the ordinary factory requirements, viz.: the boiler room, fire protection and for the personal use of the employes.

The use of water in the last named way has already assumed large proportions and the real progressive clayworkers have usually installed modern sanitary wash rooms so that the men may be able to clean up before leaving for home at night.

All in all the four big water consuming operations—pugging, boiler room, fire protection, and sanitation require an enormous amount of water. If this water should by any chance be cut off during the operation of any one or all of the above functions the probable loss would be heavy.

To safeguard the water supply of the plant is the duty of the superintendent and manager, and the positive way to do this is to provide an adequate tank, equipped with proper auxiliaries in piping and pumps.

In a majority of the plants these tanks are used not only for emergency but also are utilized for daily service.

By pumping and filling at night from private wells a sufficient supply is kept on hand to obviate the necessity of buying water, and in many other ways they demonstrate their utility. The W. E. Caldwell Company, Louisville, Ky., have a catalog descriptive of every conceivable kind of tank.

Precautions to Be Observed in Blasting

The Du Pont Powder Company in spite of the increased demand for explosives are taking good care of domestic users.

More and more clay-products manufacturers are employing blasting processes to loosen up their shales and clays, finding that in this way they reduce pit costs very materially.

Even where the large, massive power shovels are employed it is distinctly economical to use Du Pont blasting powders. Undoubtedly the wear and tear on machinery is reduced appreciably, and also the speed of digging in a fractured broken mass of clay in the face of the cliff is considerably increased.

By using well drills for big blast holes and filling with the correct charge of stick and powder, some clay plants have reduced the pit expense thousands of dollars.

Of course the blasting in small pits, where the hand shovel is used, is often considerably more profitable proportionately, than in the powered pits. Without the use of Du Pont it is practically impossible to win the clay in freezing weather, where the plant is depending on hand shovels.

But to revert to the original subject: Precautions. Accidents are decreasing simply because we understand more about handling explosives, in spite of the fact that the users of explosives are increasing. Nevertheless the following rules are always in order:

Permit no smoking in the vicinity of the loading operations.

See that the men assisting in the work have no matches —especially friction matches—in their coat pockets. There is a chance of these falling into the bore hole while loading, and the result might be disastrous.

Do not allow loose powder to accumulate around the mouth of the bore hole. Cleanliness is important.

The Caldwell Catalog

The nails in the sole of a man's shoe may cause sufficient friction to set the charge off. In a dynamite manufacturing plant no one wearing a shoe with nails in the sole is allowed in any of the buildings.

Do not bring all the explosive for the blast on the job at one time, and do not allow it to stand out in the open over night.

If possible, complete the loading and firing in one day. If it takes more than one day to load the bore holes, make no connections until just before firing. When left over night, bury the ends of the electric blasting cap wires with earth. An electric storm during the night has been known to set off a blast.

Do not prime or connect charges of explosives for electric firing during the approach or progress of a thunder storm. If already primed, keep everybody away until the storm is over.

Be sure dynamite is thawed before using. Do not cut or try to break a frozen dynamite cartridge, and do not load frozen dynamite in the bore hole.

A real text book on Clay Plant blasting contains complete information. It shows the novice and the expert the best method of handling these high explosives to get the best results safely. You may have it free, "Explosives for Shale and Clay Blasting," by asking the E. I. Du Pont de Nemours Company of Wilmington, Del.

Scale vs. Boiler Efficiency

In a previous issue of "Brick and Clay Record" there appeared an article under the above heading that was abstracted from the *Publicity Magazine*.

Coming from an unprejudiced source this story on "scale" assumes the importance that it really deserves. The Illinois Boiler Cleaning Compound Company, located in the Unity Building, Chicago, have in their boiler compound a real and a positive scale remover. The absolute necessity for it is evidenced in the following story:

Scale one-eighth of an inch in thickness means 18 per cent. more coal burned. Did you ever think of this as applied to your boilers and to your coal pile? Are your boilers clean? Do you know for a fact that they are?

The presence of even small quantities of scale or oil in a boiler impairs its efficiency. An accumulation allows an overheating of plates that may lead to serious damage.

If water comes in direct contact with the plates the heat is absorbed, the temperature of the plates remains practically the same as the water and no harm is done. If there is a considerable thickness of impervious scale in the boiler the water cannot absorb the heat as fast as it is put into the plates bv the furnace; as a result the plates become overheated, get red, become plastic and finally give way to the force of steam pressure.

An official of one of the large boiler insurance companies states that in his opinion the most frequent cause of boiler explosions is scale. The ultimate result of a neglected boiler is an explosion, but this article has to do only with the increased operating expense of such a boiler.

With well designed boilers absolutely clean and with perfect combustion in the furnace, the best that one can expect is to use 80 per cent of the heat value of the coal in making steam. The minute scale begins to form these conditions are upset and if every other condition remains the same the efficiency of the boiler begins to drop.

Under proper conditions the boilers convert into steam 80 per cent. of the heat value of the coal; with one-sixteenth of an inch of scale, the heating power is reduced 9 per cent. to 14 per cent., so that boilers operating under

The "BUCKEYE"

Is Not Only a Digger But a Wonderfully Efficient Mixer Too

As the big wheel of the Buckeye Traction Digger revolves, the sharp edges of the buckets cut into the clay bank, and as each bucket comes to the top the clay is automatically dumped on a conveyor which carries it to the waiting car. This process mixes the clay so thoroughly that the power required to pug the clay at the machine is greatly reduced.

You will thus see that the

BUCKEYE TRACTION DIGGER

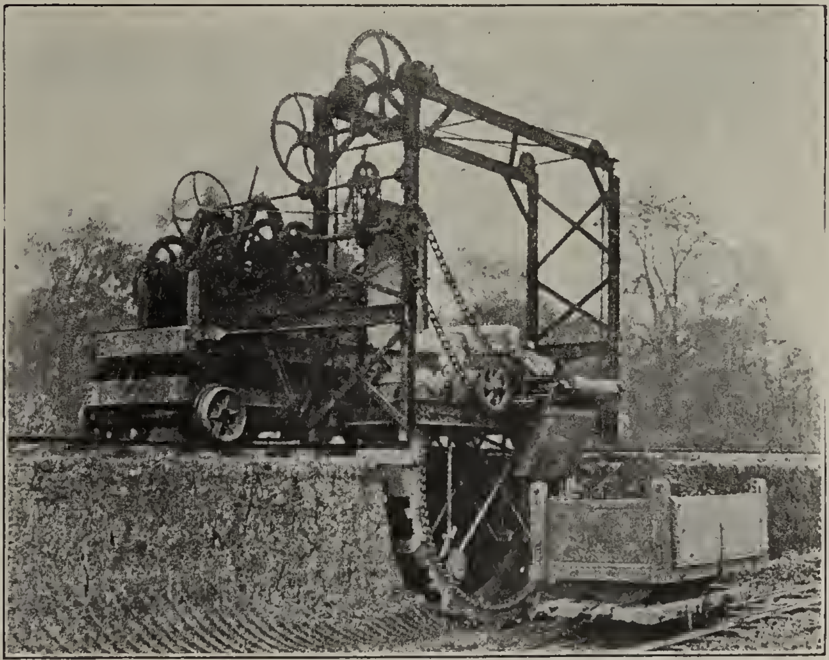
saves power as well as labor. And the Digger itself is so economical to operate that it costs but a fraction of what it would cost to operate any other kind of digging equipment.

Write and tell us what conditions exist at your clay bank—we'll tell you what we can do for you—and what we have done for others under similar conditions.

The Buckeye can be operated by either electric or gasoline power.

THE BUCKEYE TRACTION DITCHER COMPANY

FINDLAY, OHIO



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

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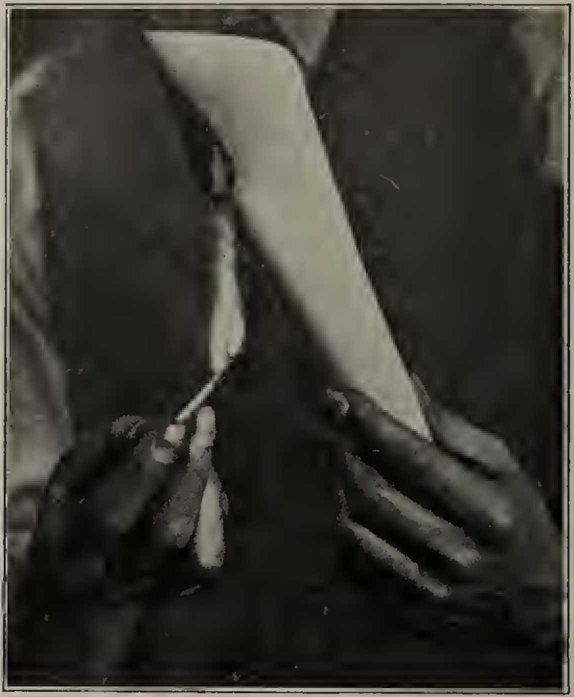


Figure 1—Where the Water Comes in Direct Contact with the Cone, the Paper is Not Even Charred

these conditions with all other conditions perfect convert into steam 72.8 per cent. of the heat value of the coal, assuming a loss of only 9 per cent.

A few experiments that require only the simplest apparatus and which can be made in a few minutes in any boiler room will convince the most skeptical that as long as water touches the container, the latter will not be damaged by heat—even intense heat; the presence of foreign matter between the water and its container retards the passage of heat and may result in the destruction of the container.

Figure 1 shows a cone rolled from a sheet of ordinary writing paper. It was partly filled with water and a match applied. The paper above the water line took fire and burned down to the water but no further. To make the test more conclusive, the flame from a gasoline blow torch was directed against the side of the water-filled cone until the water boiled—the paper was not damaged.

A variation of this experiment is illustrated in Figure 2. A sheet of the same paper as that used in the first experiment was folded into a rectangular box and pinned at the corners. One half of a glass of water (one fourth of a pint) was poured into it and placed over the burner. The water boiled in four and one-half minutes without

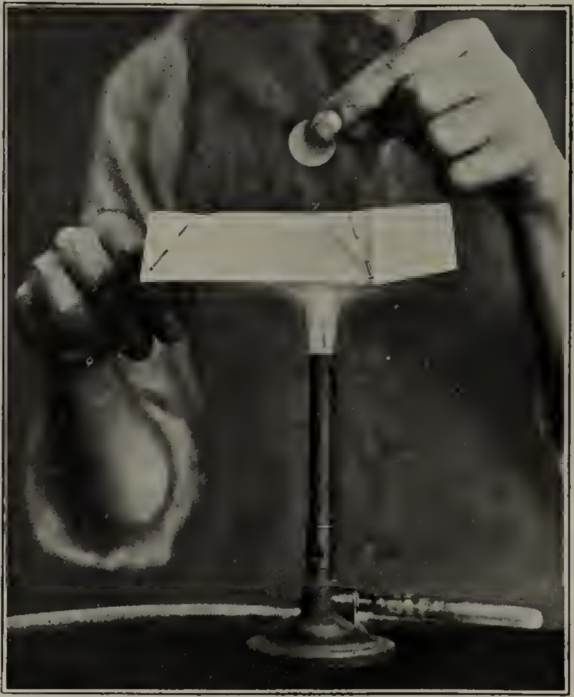


Figure 2—The Washer, Dropped into the Water-Filled Paper Box, Separates the Water from the Paper, and a Hole is Quickly Burned

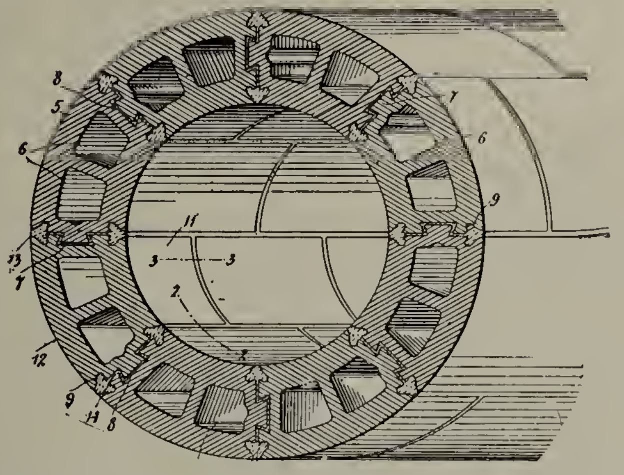
any injury to the paper box. An iron washer was then dropped into the boiling water directly over the fire. Almost instantly the paper under the washer was burned away and the washer and water went thru the hole, putting out the flame.

In a second experiment with the paper box a pinch of fine sand was dropped into the water directly over the fire. The paper charred thru in twenty seconds and allowed the water to run out.

These tests prove that water will absorb heat so rapidly that even a paper container will not be damaged, providing the water is in direct contact with the paper.

If your boilers blister or your flues burn out, do not jump to the conclusion that your fire is too hot. Look inside the boiler for the trouble. It is very probable that your boilers are coated with scale.

Very rarely does this scale form evenly over the interior of a boiler. In one place it may be ¼ in. and another 1/16 in. So many factors enter into the effect of scale on the fuel consumption that the only way to arrive at correct figures is to run a test with your boilers as they are—that is, before they are cleaned. Then run a second test, after they have been thoroly cleaned. The results are apt to be startling. Some time since, a report was received of a very unsatisfactory test that had been made by a prominent firm of consulting engineers on a 250 H. P. water-tube boiler, equipped with mechanical stokers. In a twenty-four hour test, they were able to develop only 164 H. P. or about 65 per cent. of rating, with an evaporation from and at 212 degrees F., or 8.85 lbs. of water per pound of coal.



Ajax Segment Sewer Block. Note How the Blocks Fit Into Each Other

Tests made when the stokers were installed and the boilers clean, had shown excellent results. An engineer was sent to investigate, and found that the boiler had not been cleaned since its installation, six months before. After thoroly cleaning it, a second test was made, with the result that the evaporation from and at 212 degrees F. was increased to 10.17 lbs. of water per pound of coal, and for ten hours the boiler developed an average horsepower of 406.2, or 165 per cent. of rating.

If your boilers are not clean it is a physical impossibility for you to produce steam within the mark set by your boilers when kept in good condition.

Illinois Boiler Cleaning Compound has already been used for years on clay plant boilers and has been a success.

Ajax Silo and Sewer Segment Blocks

The Southern Pipe and Culvert Company of Macon, Georgia, have had such phenomenal success with both their silo and sewer blocks that they are busily appointing agents in unoccupied territory.

The silo block has received in the last few years an impetus that is gaining strongly each single season.

According to one of the members of the firm it will be difficult to supply the demand in just a few years, which of course is indicative of the reasons why the clay plants should get ready to supply present and future demands.

The Cling-Surface Company, 1029 Niagara St., Buffalo, N. Y., have issued a very unique calendar of special interest to superintendents and will be glad to send one to any one asking for it.

Did you ever notice the many little ways in which the

LAKEWOOD LINE
Excels?

For instance in

Dump Cars

provision is made for a brake stick—just a little thing, but it illustrates the care that we take to get everything just right—and then in

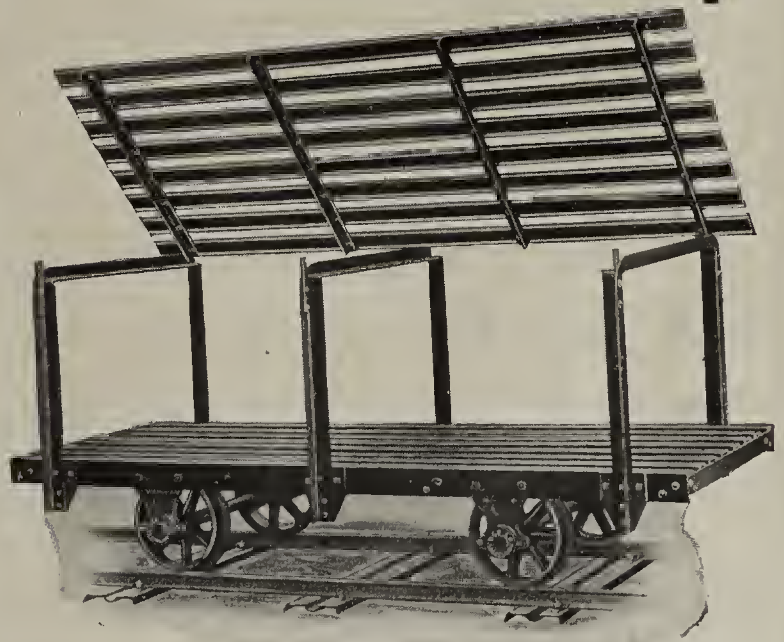
Dry Cars

the angle supports for the top deck are not located WITHIN the area of the lower deck, but are bolted on to the SIDES, and so do not interfere with the loading of green ware.

Satisfaction

is purchased with every order of Lakewoods, but it doesn't cost one cent extra.

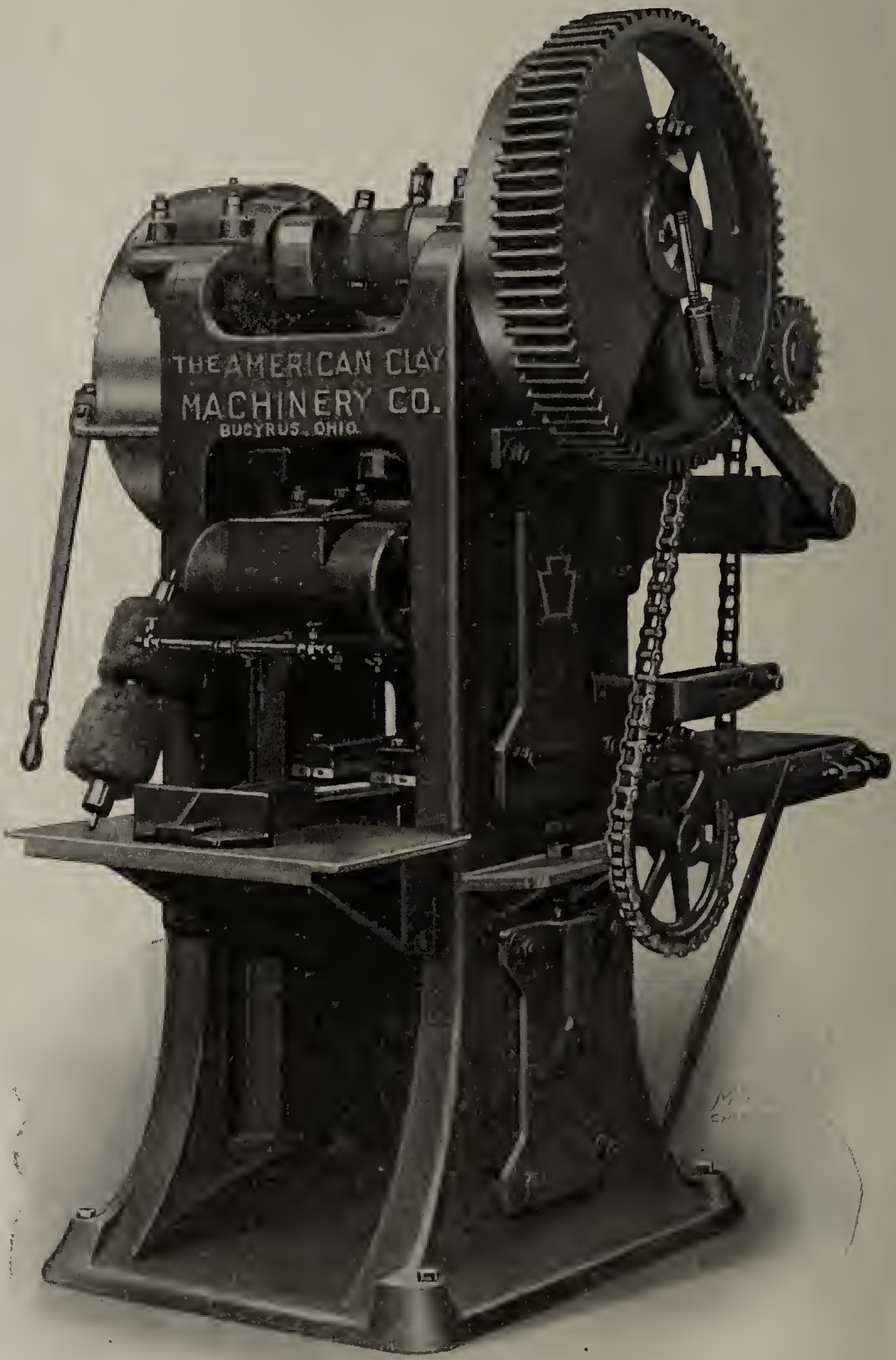
The Lakewood Engineering Co.
Cleveland, Ohio



Why Not You?

WHEN the leading manufacturers of Paving Brick use the No. 292 American Repress, why don't you? These leaders looked over the 292 Press from top to bottom. They took it apart and put it through an X-Ray process of investigation. It made good in every detail, frame, guides, working parts, material, workmanship and all. Then they tried it out and if you want to know what results they got, just ask for letters written after the test.

Get a specification sheet on the No. 292 American Repress. It will be sent for asking.



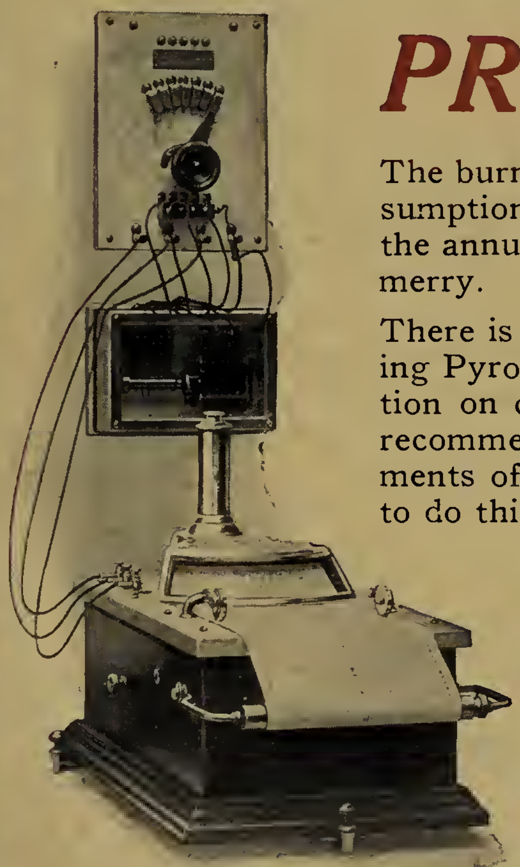
The American Clay Machinery Company

Bucyrus - Ohio

BRICK and CLAY RECORD

Every Christmas is a "Merry Christmas"

For the Plant Manager Whose Foresight and Good Judgment Have Made it Possible for the Head Burner and His Assistants to Have the Daily Help of



PRICE PYROMETERS

The burners are more proficient—there's a big saving in fuel consumption—better ware is produced and sold at a higher price—the annual statement pleases the stockholders—and everybody is merry.

There is nothing mysterious about Price Indicating and Recording Pyrometers—they are designed to meet every varying condition on clay plants. Our Engineers study each plant and then recommend the equipment best suited to the particular requirements of that plant. Our fourteen years' experience enables us to do this with unerring judgment.

We are proud of every installation we have made in brick and tile plants, and every one of our customers in this industry is an enthusiastic booster. We will gladly give you their names if you care to write and ask them whether Price Pyrometers have been a good investment for them.

Investigate and you'll be convinced that we can help you to add much to your enjoyment of every Christmas during the years to come.

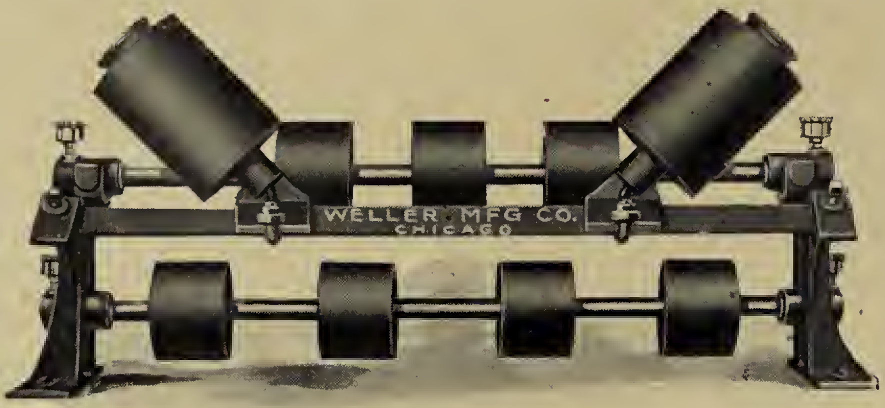
THE PRICE ELECTRIC COMPANY
12367 Euclid Avenue, CLEVELAND, OHIO

Vol. XLIX, No. 12 Chicago December 19, 1916

WELLER-MADE

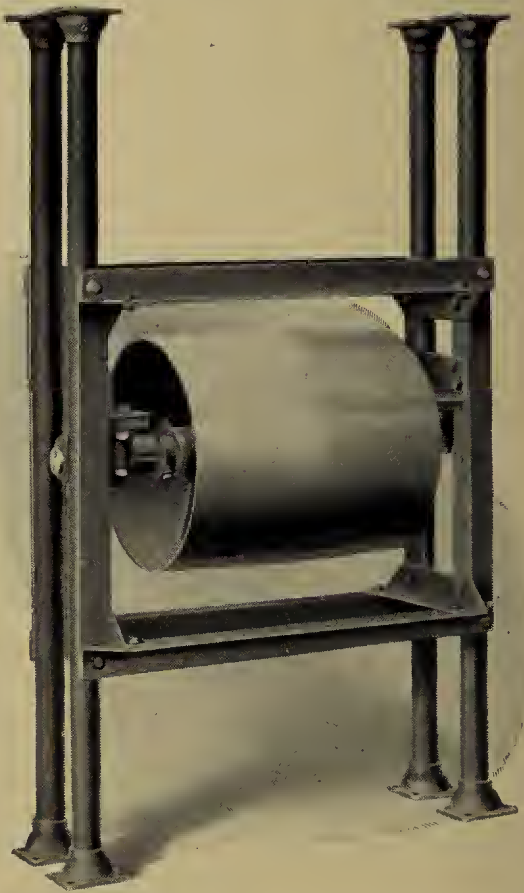
Belt Conveying Equipments

No method of conveying raw or ground clay, shale, grog, coal, etc., can equal in economical or satisfactory operation a properly designed and installed belt conveyor



Our line of carriers is the most extensive of any manufacturer of similar equipment.

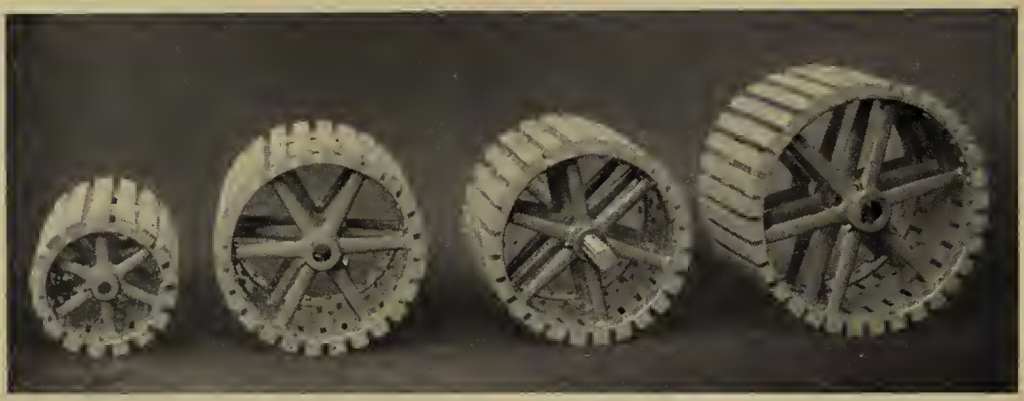
There are no freak designs, but the old tried, true and proven types that have been giving satisfactory service day in and day out for the past 25 or 30 years.



Our Automatic Take-ups maintain an absolutely pre-determined and constant tension on the belt, avoiding trouble and accidents from belt stretching due to load or weather conditions.

The need of attention to hand operated take-ups is eliminated and head and tail pulleys may be located in fixed position.

We build these take-ups to operate in vertical, horizontal or inclined position for belts up to 60 inches wide with pulleys 12 to 60 inches in diameter.



Slatted pulleys for head and tail ends of conveyors or elevators eliminate the nuisance of clay sticking and packing on face of solid pulley.

We make them any diameter or face desired to suit conditions.

Our prices are right—fair to you and to ourselves

WE KNOW HOW AND DO BUILD GOOD

Elevating, Conveying and Power Transmitting Machinery

WELLER MFG. CO., CHICAGO

NEW YORK
50 Church St.

BALTIMORE
Garrett Bldg.

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Kearns Bldg.

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316 Rialto Bldg.

SAY I SAW IT IN BRICK AND CLAY RECORD

Your Guarantee For
Satisfactory Service

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BURNING KILNS
DESIGNED AND BUILT BY
EXPERTS
IS OUR SPECIALTY

Let Us Send You Our Literature

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Kiln Builders
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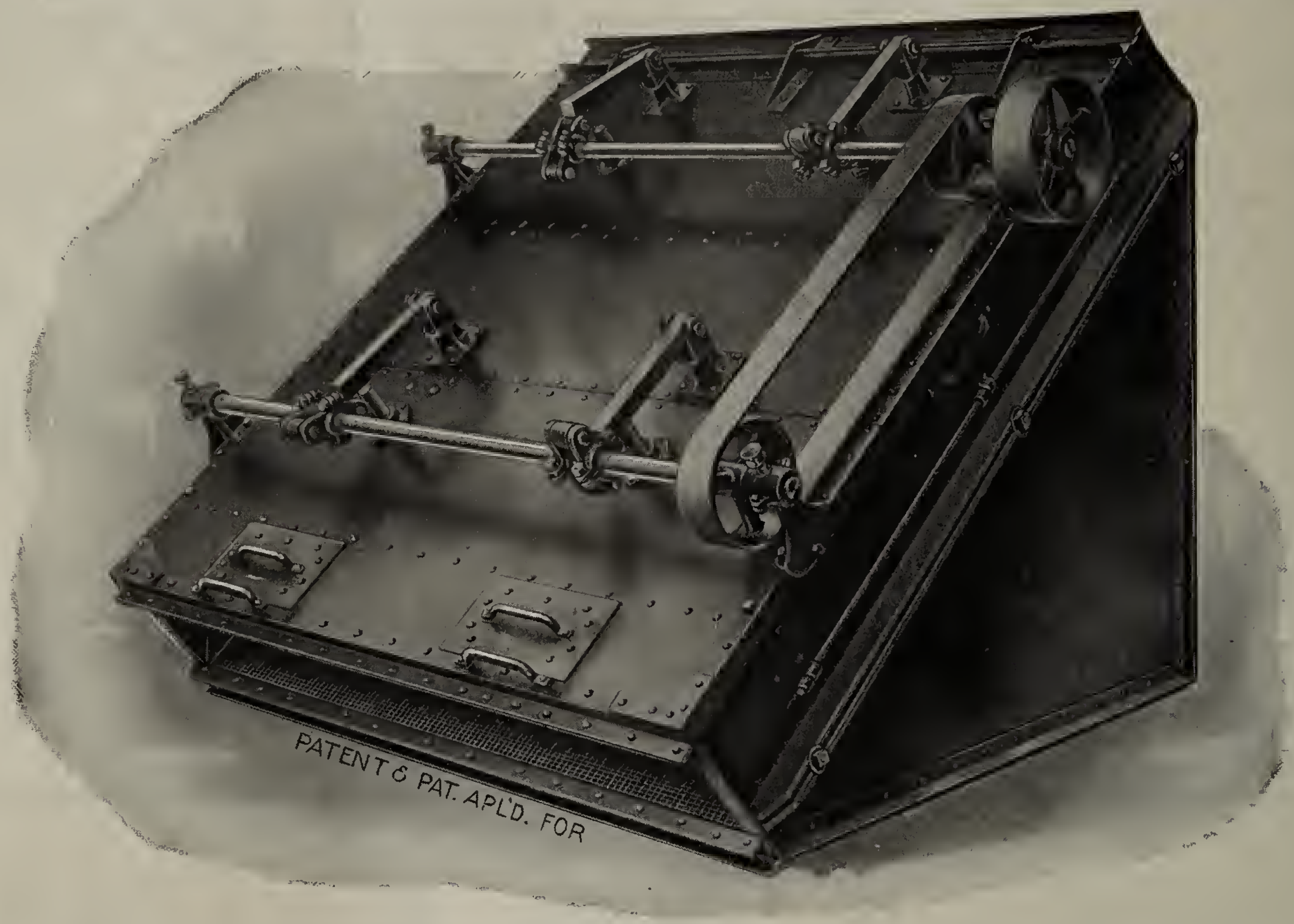
STURTEVANT
NEWAYGO CLAY SCREENS



Produce an accurate product through a square mesh wire cloth, no slivers or coarse particles can pass its surface and spoil the uniformity of a high grade brick.

DIFFICULT TO CLOG

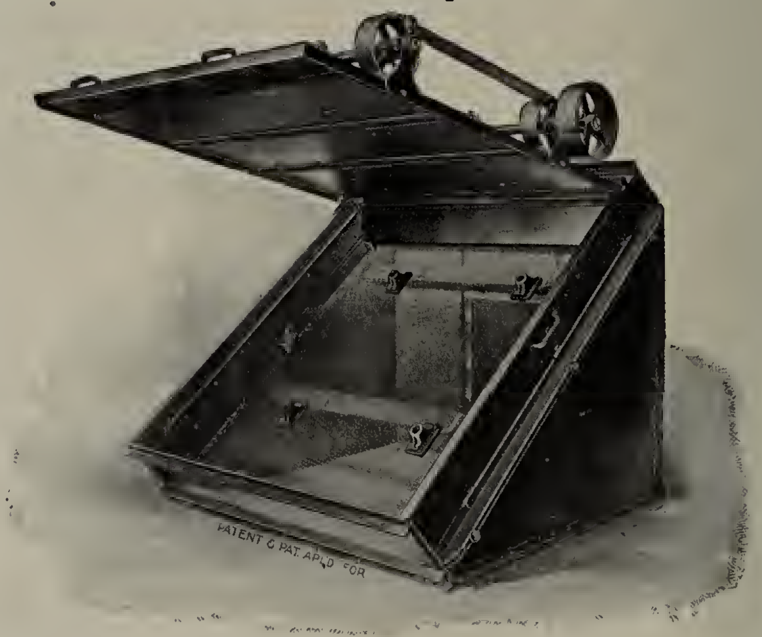
Because:—The screen surface is square mesh wire cloth which is mechanically rapidly vibrated, not shaken or bumped by eccentrics, but tapped by hundreds of little hammer blows upon its re-enforced surface, thus preventing anything from wedging or sticking in its meshes. The screen wire is stretched taut and held taut to make this continuous and rapid vibration possible.

It is a well known fact that wire cloth set at a 45 degree angle produces a product twice as fine as a flat screen of the same mesh, therefore a 6-mesh screen cloth on the Newaygo gives an accurate 12-mesh output. Large openings are difficult to clog and open meshes mean large capacity. Heavy wire used with coarse meshes is durable.

Newaygo Screens are rapidly replacing the piano wire and slotted screen types.

Used by many large Brick Manufacturers.

Built in several models and sizes.



Send for Catalogue 77E.

STURTEVANT MILL CO., BOSTON, MASS.

"Stretch" and "Slip"

These Wasteful Twins are Costing American Manufacturers $100,000,000 a Year

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The Scientifically-built Leviathan-Anaconda Belting eliminates stretch and slip and is adding 10 to 30 per cent. to the productive capacity of Machines

THIS Year 1916 will be notable in the history of many a business as the year it woke up!

Plants which have been resting fourteen hours out of every twenty-four, are now keeping *three shifts busy seven days a week.*

Transmission which formerly had an easy job and plenty of time to recuperate, is groaning under a *continuous overload.*

The head of the House is personally looking into many matters which formerly were classed as "routine" or "departmental," and were run on tradition and theory.

He finds that to speed up machines even a little takes power out of all proportion. He sees that the plant that "just passes" under ordinary conditions falls down when the real test comes. The *belting* that has to be *dressed* and *taken up* and *pampered* when a factory is running at *normal*, is going to be an awful *expense* when that factory is taxed to keep up with orders.

* * *

In times like these, *scientifically built belting*, such as Leviathan-Anaconda justifies itself a thousand times over.

The average manufacturer has not thought much about his belting so long as it seemed to be doing the work—any more than the average man thinks about the muscles in his arm.

But when a man sees an example of remarkable development and realizes how weak and flabby his own muscles are, he wakes up to his own weakness.

Probably the severest jolt the manufacturer could get is to compare his own figures with those of a plant in which Leviathan-Anaconda is used.

* * *

The Leviathan-Anaconda user in 19 industries is beginning to see *(and his competitor is beginning to feel)*, that under the stress of present conditions his belting is doing its work *without special care;* adequately with *power to spare;* is *handling overloads* without shortening its life or lessening its endurance.

The up-to-date factory man and the efficiency engineer are alive to the facts and when these people want results they are *specifying Leviathan-Anaconda without solicitation.*

* * *

One of the oldest of the world's industries is brick making. The art came from Babylon and Egypt Perhaps some of the methods did also.

But there is a modern plant in North Carolina, the Cherokee Brick Company, where totally new methods and new types of machinery have been put in by efficiency engineers. The plant makes good brick and good looking brick. It is a marvel of efficient production and uses the last ounce of power delivered to its machines

There has been no question in the minds of the engineers about belting. *Leviathan is used* and its records fully justify the judgment of the men who chose it.

* * *

Another representative of an ancient industry is the Chickasaw Milling Company. But located in Oklahoma, it goes without saying that its elevator equipment is as modern as any in America.

A little instance of the strength and ruggedness of the Anaconda elevator belt in this mill was given when the grain elevator became *choked with grain* so that in running it flattened out the buckets. *The belt kept on running.* When it was taken off for new buckets not enough stretch was found to make it necessary to take it up a single inch.

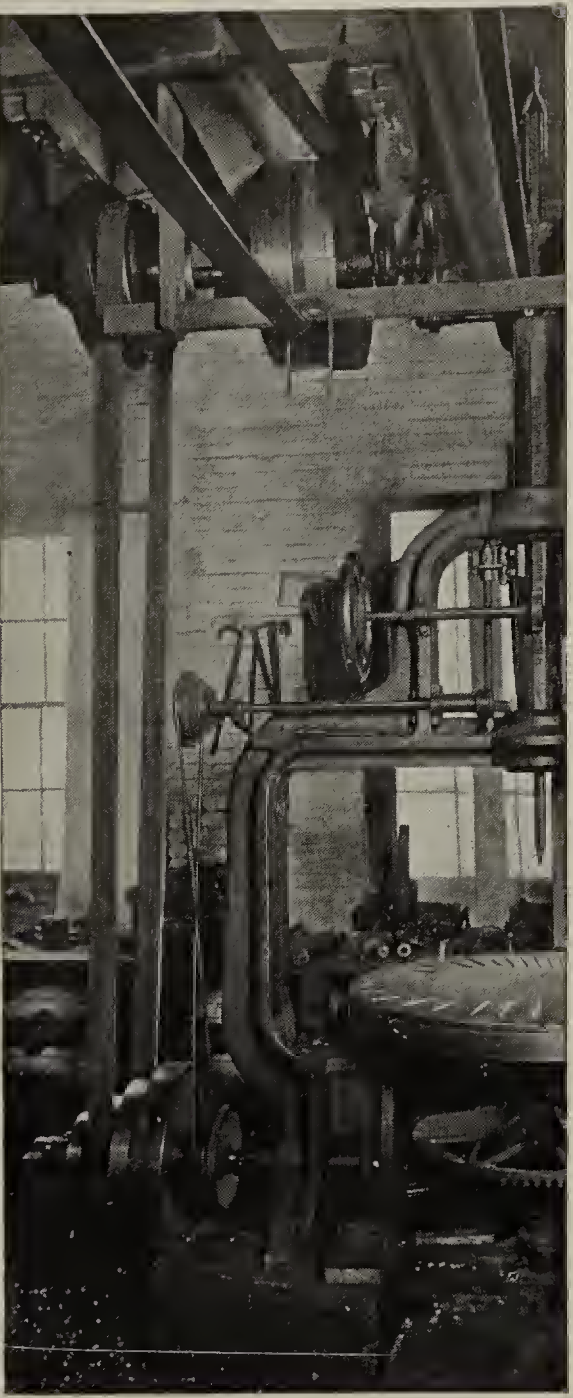
* * *

Leviathan-Anaconda Belts are totally unlike any other belts in the world—various-ply, of solid fabric, so impregnated with a special composition, treated, stretched and aged as to form a pliable belting material well-nigh indestructible.

They are in no sense a substitute for any other type of belting: They are the scientific answer to the power transmission problem in *nineteen classes* of American industry.

By all means have your engineer send for our Belting Hand Book.

***But more important, write us,* and let us show you the *man service* that comes before belt service.**



"This belt has been in service over 30 years, and has worn down to almost 2-ply — but is still giving 100% service. It has very rarely been dressed, and it has not been taken up in years."

LEVIATHAN AND ANACONDA BELTS
for Transmission, Conveying and Elevating
MAIN BELTING COMPANY, Philadelphia
New York Chicago Pittsburgh Seattle Birmingham

CHARLES PURDEN, Birmingham, England
THE M. METT ENGINEERING CO., Petrograd, Russia
WM. A CAMPBELL, Havana, Cuba
MAIN BELTING CO. OF CANADA, LTD., Montreal, Toronto
ADOLPHE GRANDJEAN 212 Rue Lafayette Paris
HONOLULU IRON WORKS CO., Honolulu

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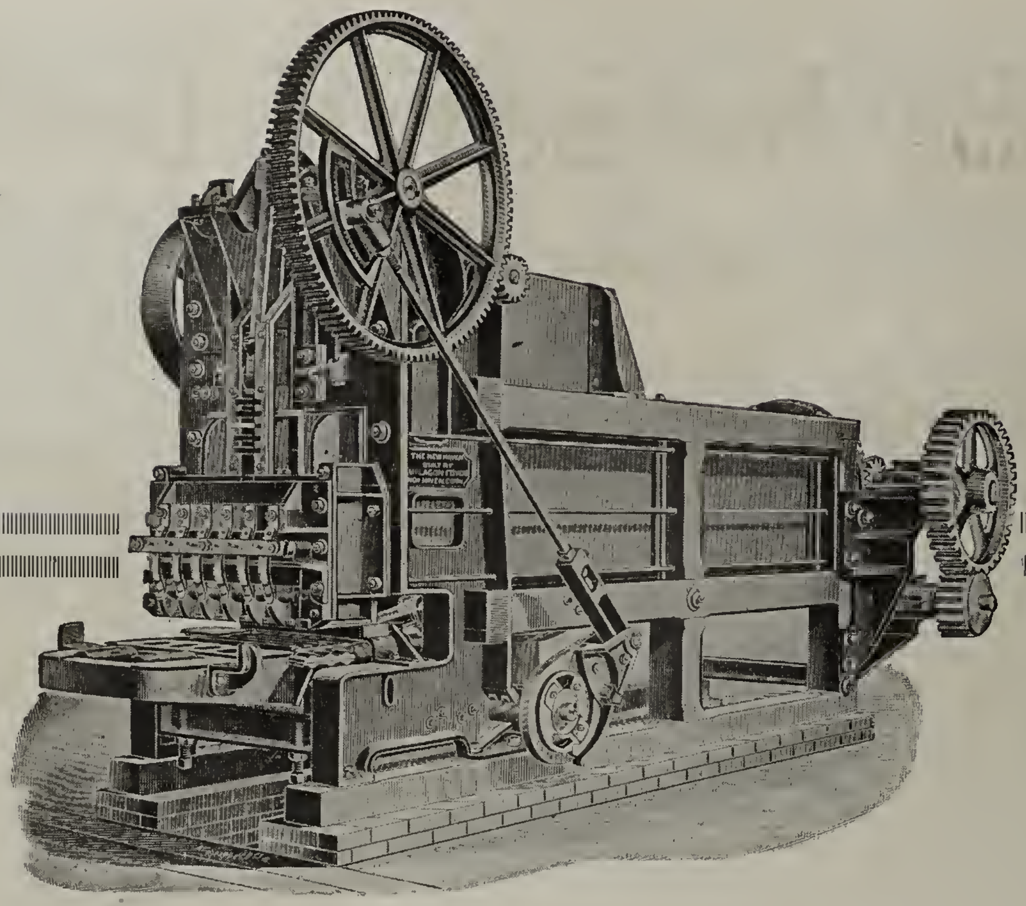
SAY I SAW IT IN BRICK AND CLAY RECORD



Assets and Liabilities

Every piece of machinery is an asset and a liability.

A high (or low) first cost does not make it a greater or less asset.

The interest, merely, on that first cost, is a liability. So is the repair cost. So is the cost of power to run the machine.

Estimated depreciation, or a sinking fund, calculated upon the life of the machine is a greater, or less liability, in proportion to the known life of the machine.

Efficiency—the amount of product and quality of product—determines the amount of the asset.

Not what the machine *costs*—what it *does.*

In making brick machinery we did not attempt to make a low-priced machine.

We figured on making brick machines with the highest asset making qualities and the lowest liability making points.

We realized that more brickmakers wanted *results*—that is, *profits*—than wanted low-first-cost and high-upkeep machines.

The interest on the difference in cost is nominal, when compared to other liability items.

Not that our machines are too costly. They are built to work, built to wear, built to *run,* day after day, without a breakdown.

Have these points in mind when you look at brick machinery.

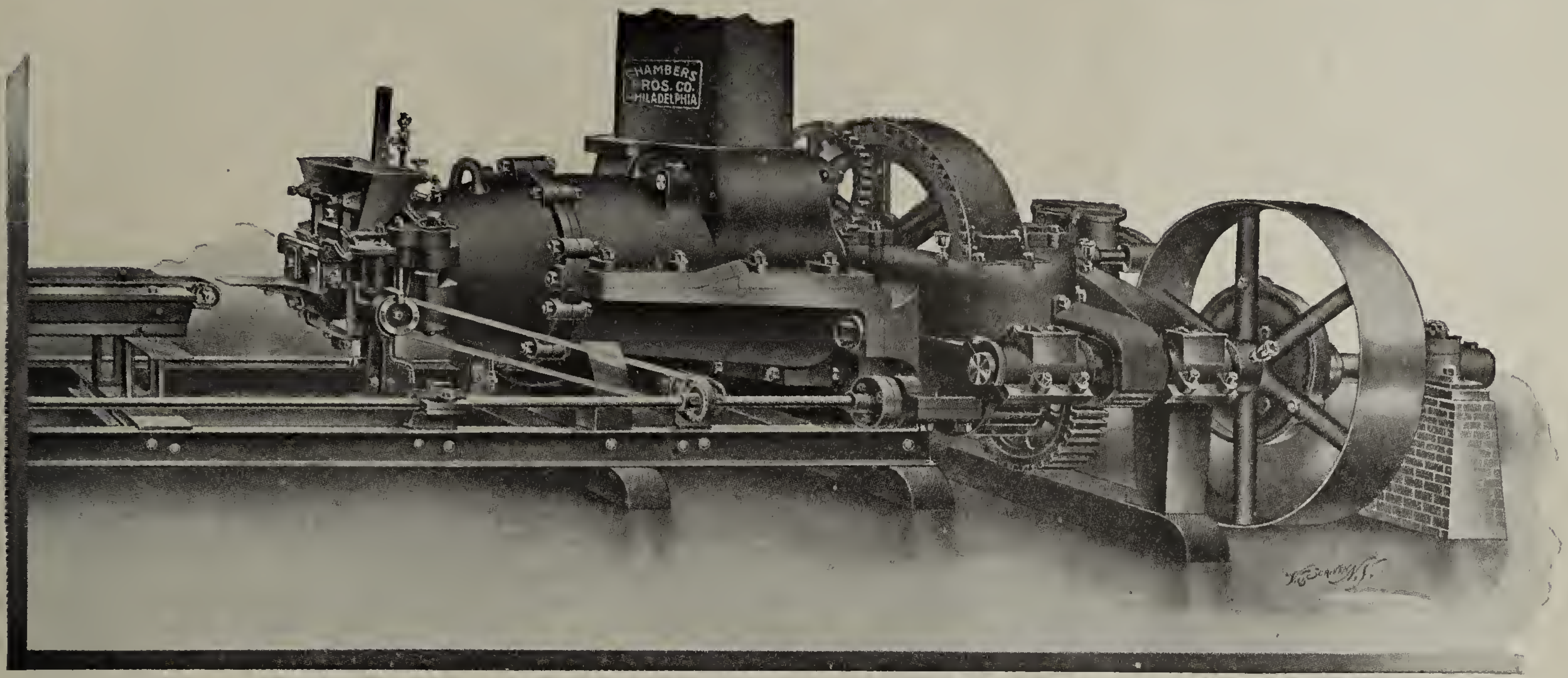
New Haven Soft Mud Brick Machines

Turn Out More Brick, More Perfect Brick, Last Longer, Have Fewer Repairs, Use Less Power and Have Fewer Break Downs Than Any Other Soft Mud Brick Machine Made

The Eastern Machinery Company

New Haven, Conn.

Clay Working Machinery of Good Quality



Auger Machines for Side-Cut and End-Cut Processes

Automatic cutters, both single and double stream. No. 10 multiple cutter for face brick. Rotary cutter No. 5, improved and developed in connection with the requirements for **fire brick** and **furnace block work.**

Reliable Single and Double Shaft Mixing and Pugging Machines

The No. 4 Keystone Repress for 20-Inch Block

is usable for smaller sizes and for shapes

Among the purchasers of "Keystone Represses" are:

General Refractories Co. (four plants); The Kentucky Fire Brick Co.; Ashland Fire Brick Co.; Chas. Taylor Sons Co.; A. P. Green Fire Brick Co.; Winslow & Co.; The Sayre & Fisher Co.; Joseph Oschwald; The Cherokee Brick Co.; Fulton Brick Works; Kier Fire Brick Co.; Carlyle Paving Brick Co.; C. & W. Shiel of New Zealand; Arthur Krug, Brazil.

Chambers Brothers Company

PHILADELPHIA, PA.

North Fifty-Second Street, Corner of Media Street

SAY "I SAW IT IN" BRICK AND CLAY RECORD

There Are Many Clayworking Plants Where the Labor Problem is No Longer a Source of Worry. *Is Yours One of Them?*

We can send you the names of these plants and let you write them direct if you care to do so. Ask them whether the

Schofield-Burkett Excavator

has been a God-send to them in these times.

These excavators are loading hard shale in the west—tough clay in the Hudson River district—and all kinds of brick clay in every section.

We can help you to overcome your lack-of-labor troubles if you'll give us a chance. We absolutely guarantee satisfactory results. Ask us.

Remember—we superintend the installation of this machine for you—we demonstrate that it will load your material at a certain cost per cubic yard—we make good on every claim before settlement is expected. Could anyone be more fair?

Catalog No. 10 awaits your request.

Schofield-Burkett Construction Company
MACON, GEORGIA

SAY I SAW IT IN BRICK AND CLAY RECORD

NO MATTER WHAT YOUR REQUIREMENTS MAY BE THE PROCTOR DRYER SATISFIES THEM ALL!

That statement seems to be too broad, until you realize that the PROCTOR is elastic, and that it yields to perfect control.

Note that the humidity of the atmosphere in the dryer can be controlled—the temperature of the drying air can be controlled—the exact volume of air flow and the speed of the air flow can be controlled—the passage of the ware thru the tunnel can be controlled—therefore practically every variable humidity, temperature, volume and speed of air, etc., can be regulated to exactly suit the conditions of your clay and your method of manufacture.

In partial support of these contentions, just look at the interior view shown below. Note the construction, the steel casing, the steel rolling doors, the disc fan, the method of setting the steam coils, the device for securing positive movement in the cars. Isn't it wonderful? Do you see now why it will accomplish in drying the seemingly miraculous?

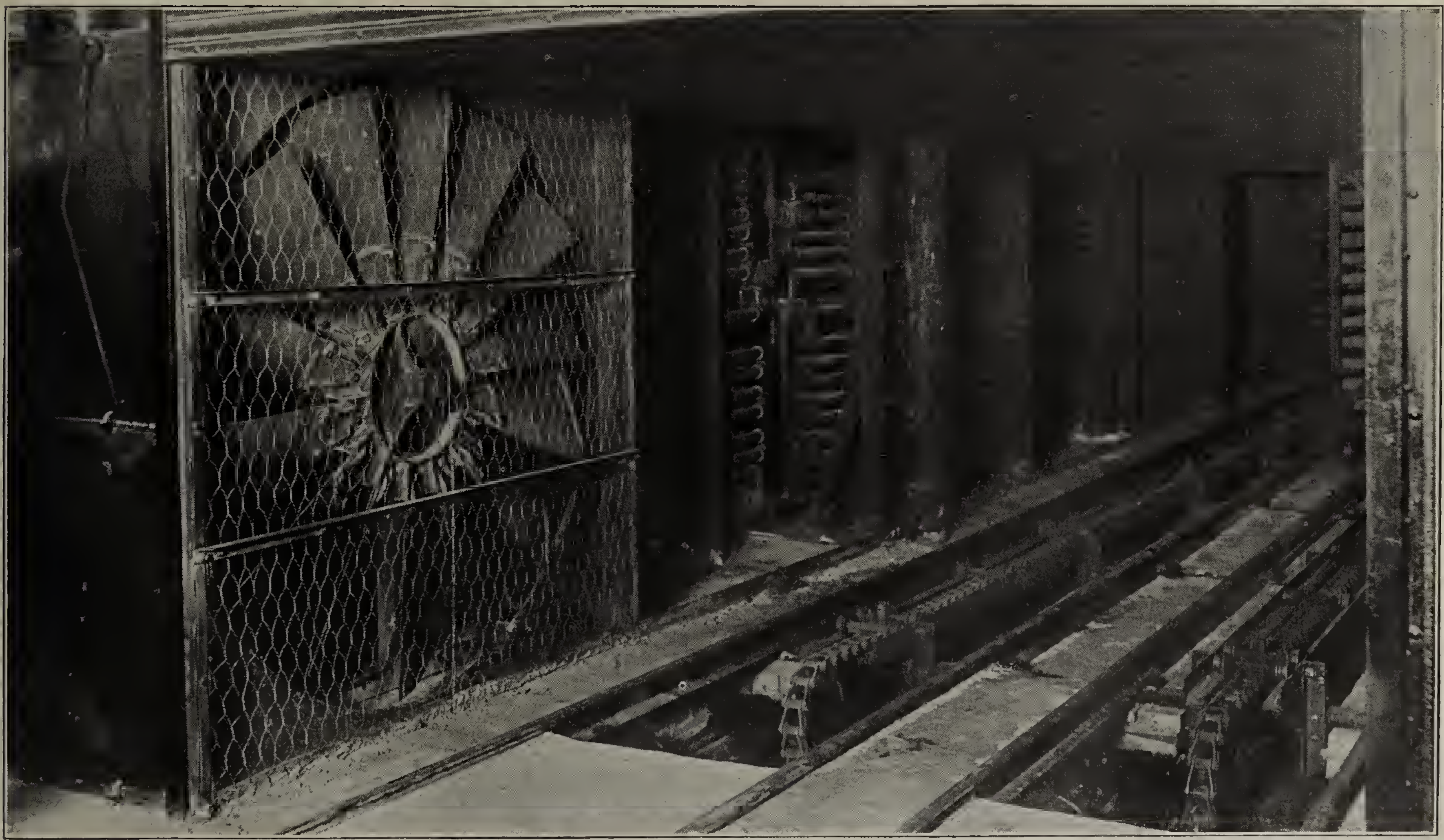
The PROCTOR saves you money because it saves hours in drying time, because it can be regulated to produce practically 100% dry perfect ware, because it is positive in its action, because it is relatively small and compact.

There Is No Other Dryer Like The Proctor Dryer

We want one of our Engineers to tell you all about it—we know it will be worth your while to give us this permission. Say you want him and arrangements will be made; but in the meantime, have you our catalog?

The Philadelphia Textile Machinery Co.

Hancock and Somerset Streets **Philadelphia, Pennsylvania**



The Keenest, Brainiest Men In The Clay Products Industry Are Almost Without Exception Pondering The Fuel Question

To Solve It Means Success—
Not to Solve It Means—Receivership.

Coal is costing prohibitive prices—in fact many are paying as high as $3.75 on contract, where former price was $1.50 f.o.b. mines—and the end is not in sight.

The "way out" has already been discovered, and is successfully in use. The Underwood Producer Gas Burning System (Patented) is saving from 35 to 50 percent of the fuel—in addition to numerous other advantages that in themselves make the system well worth installing.

One of our recent installations, where the results have been little short of marvelous is shown below—the plant of the Buffalo Brick Co., Buffalo, Kansas. Let us show you what we can do on your plant.

The Manufacturers Equipment Company, Dayton, O., U. S. A.

Western Agent, Geo. H. Smith, 510 Reliance Bldg., Kansas City, Mo.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

THE CONSERVATION OF ENERGY AND THE TRANSMISSION OF POWER

Price Is Only a Part of Cost

The ordinary kind of conveyor belting used in brick yards is very much like a treadless tire on an automobile.

No one would consider starting a tour on tires with the treads worn off, practically on canvas tires.

The sharp stones and grit of the road would soon have their way and new tires would take the place of the old.

And the new ones would not be treadless—not if the owner had any choice in the matter.

Just as the sharp stones of the road cut treadless tires, the sharp clay of brick yards, almost as hard and sharp as flint, cuts the unprotected surface and soon wears out the cheap uncovered belt.

So the cheaper the belt, the dearer it proves to be. The true cost of belting must be figured in the amount and kind of service per-dollar-of-cost—not in price.

When we designed the "Goodyear" Conveyor Belt especially for conveying clay from the dump to the grinding pans, we designed it so as to give not only service at a lower cost, but better service.

The reinforced cover is like the tread on a tire; it adds to the life of the belt because it resists cutting and abrasion.

This cover is also waterproof, and because rubber is forced into the fiber of the duck at enormous pressure the belt is impervious to moisture throughout—and moisture decreases the life of ordinary belts because it causes mildew and rotting.

Ordinary belts also wear out quickly at the edges because sharp pieces of clay catch between them and the sides of the trough.

The "Goodyear" Conveyor Belt is provided with a patented cushion edge to withstand the hardest kind of cutting action by wedged-in material.

And the stretch has been taken out.

With the "Goodyear" Conveyor Belt you will not have to cut on wet days and put back the cut on dry days.

There will be no loss of efficiency—of power—because of stretch.

The price may be higher, but for every dollar expended you will get longer service—and better service.

* *

Write for our Encyclopedia of Mechanical Goods, containing specific recommendations for every operation involving conveyor and elevator belting. We believe this book is the greatest advance in the method of presenting and treating your mechanical and buying problems offered in the last twenty years. Both master mechanics and administrative executives are using it in revising operating costs downward. Send for it today.

The Goodyear Tire & Rubber Co., Akron, Ohio

· PACKING · BELTING · HOSE · VALVES ·

GOODYEAR
AKRON

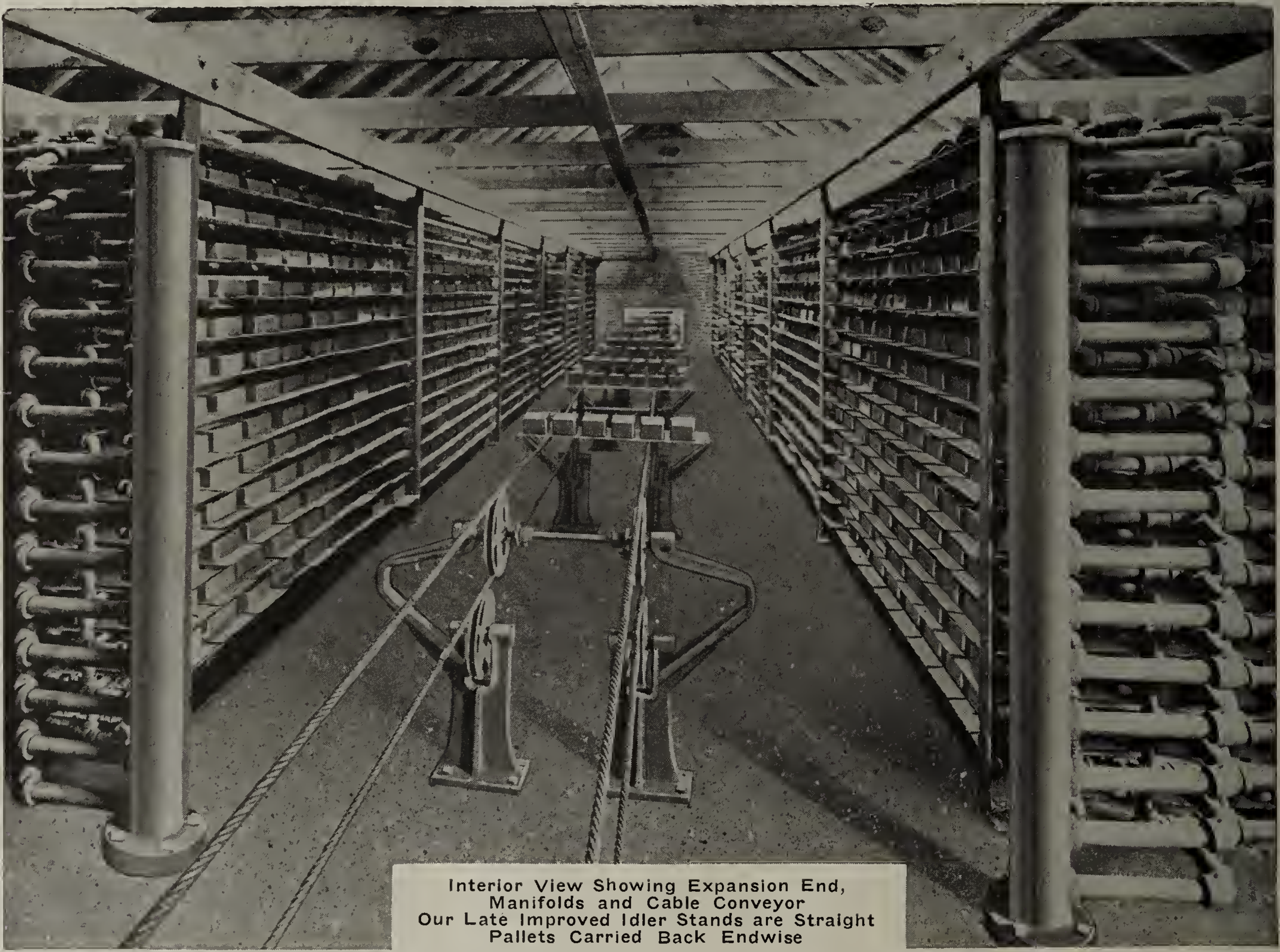
The Wellington Dryer

(Low Pressure Vacuum System)

Has been a big profit-maker for every one of these well known brick manufacturing concerns—and it has been especially of great value during the past season, when help was so high priced and hard to get.

Ask any of them what the Wellington Dryer has done for them—we are willing to let you base your estimate of it on the responses you get.

Barkwill Brick Co., Cleveland, O., 240,000 capacity.
American Building Brick Co., Cleveland, O., 30,000 capacity.
J. S. Haggerty, Detroit, Mich., 120,000 capacity.
Walker & Frank Brick Co., Detroit, Mich., 35,000 capacity.
Mercier-Bryan-Larkins Brick Co., Detroit, Mich., 60,000 capacity.
F. Seitter's Sons Co., Philadelphia, Pa., 60,000 capacity.
Owen Hatten, Jr., Philadelphia, Pa., 25,000 capacity.
Ithaca Brick & Tile Co., Ithaca, N. Y. 30,000 capacity.
Ohio Brick Co., Toledo, O., 35,000 capacity.
Collingwood Brick Co., Toledo, O., 50,000 capacity.
Cook & Brown Lime Co., Oshkosh, Wis., 40,000 capacity.
Donnelly Brick Co., New Britain, Conn., 60,000 capacity.



Interior View Showing Expansion End, Manifolds and Cable Conveyor
Our Late Improved Idler Stands are Straight
Pallets Carried Back Endwise

NOTE THESE WINNING POINTS: The Wellington is lower in first cost than any other dryer—also it costs less to operate in both labor and power. It wears well—keeps in splendid working condiiton—costs only a minimum for repairs. Let us tell you more about it.

The Wellington Machine Company Wellington, Ohio

SIMPLICITY HONESTY

LINCOLN MOTORS

Eight Years Digging Clay

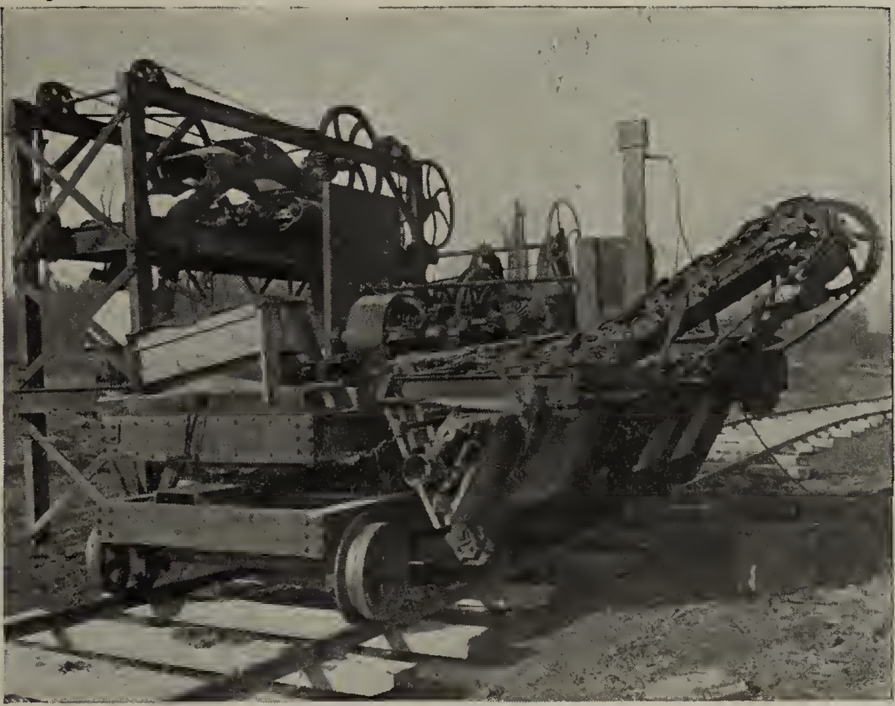
This Lincoln Motor has operated out of doors in dust and rain for over eight years, furnishing power for this clay digger, and it is still giving good service.

The E. Biglow Co., who own it, say: "The 10 H. P. motor we bought of you March 26, 1908, has given us very good service.

"This motor is used to run a Buckeye Traction Digger and is out of doors all the time, with only a box over it to keep off the rain, and there is a large amount of dust in connection with the digging.

"E. O. Biglow, President."

This is not an extraordinary record for Lincoln Motors but a fair example of what they do in brick and clay plant work.



Lincoln Motor operating Buckeye Traction Digger, E. Biglow Co., New London, Ohio.

Write for Bulletin on Motors 101-B

"Link Up With Lincoln"

This Standard Lincoln Motor has operated under water for over 3 years without damage to windings.

The Lincoln Electric Co.

CLEVELAND, OHIO

New York City (Singer Bldg.)
Buffalo
Chicago
Columbus
Detroit
Philadelphia
Pittsburgh
Charlotte, N. C.
Toronto, Canada

Agencies in Other Principal Cities

SAY "I SAW IT IN BRICK AND CLAY RECORD"

RELIABILITY

is one of the most important factors of any power-transmitting medium, because, after all, it is dependable, every day service—transmitting power without slip or loss—that makes for maximum production. You get this kind of efficient service from

LINK-BELT
SILENT CHAIN DRIVES

The illustration shows a part of the Silent Chain Drive installation at the Nazareth Portland Cement Co. plant, Nazareth, Pa. Seven 150 H. P. drives operate their tube mills 24 hours per day continuous service during the entire grinding season. After the first nine months of 24-hour service, a careful inspection of the drives showed practically no effect of the hard work they had done. The drives are good for many years of reliable operation.

If Link-Belt Silent Chain is an ideal transmission for this heavy duty—maintaining 98.2 per cent efficiency—why not employ it in your work, and get the same satisfactory results? Data Book No. 125, our 112-page price list, gives complete information about Silent Chain Drives, and shows how to figure them.

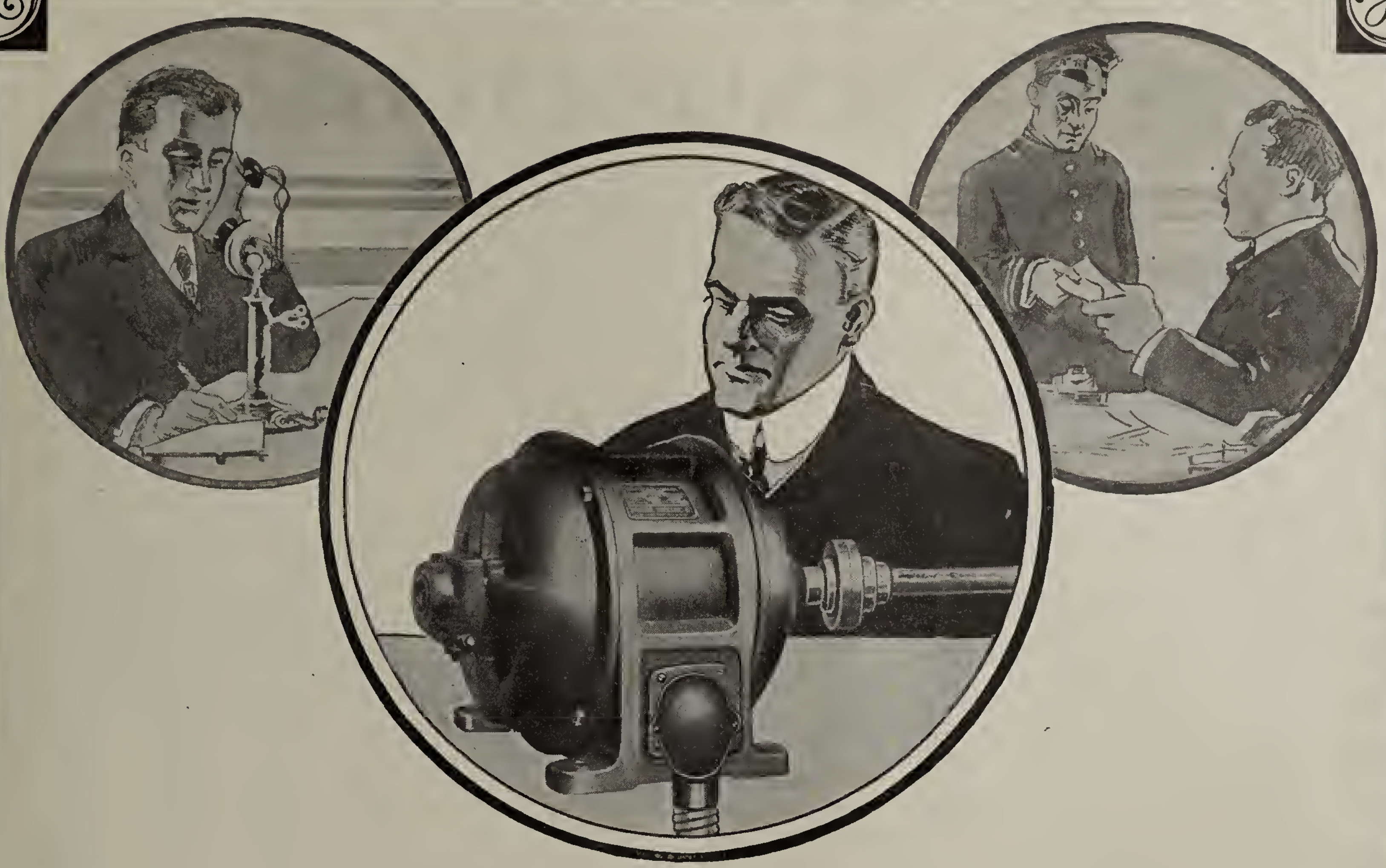
LINK-BELT COMPANY

PHILADELPHIA CHICAGO INDIANAPOLIS

New York . . 299 Broadway
Boston . . . 49 Federal St.
Pittsburgh . . 1501 Park Bldg.
St. Louis, Central Nat'l Bank Bldg.
Buffalo . 698 Ellicott Square
Cleveland 1304 Rockefeller Bldg.

Detroit . 732 Dime Bank Bldg.
Wilkes-Barre, 2nd Nat'l Bank Bldg.
Minneapolis . 418 So. Third St.
Los Angeles, 161 N. Los Angeles St.
Seattle . . 580 First Ave., S.
Portland, Ore., 14th & Lovejoy Sts.
Knoxville . . Empire Bldg.
Birmingham, D. T. Blakey, 309 Am. Trust Bldg.
Denver, Lindrooth, Shubart & Co., Boston Bldg.
San Francisco . 461 Market Street

New Orleans, Whitney Supply Co. 418 So. Peters St.
Charlotte, N. C., J. S. Cothran, Commercial Bank Bldg.
Louisville, F. Wehle, Starks Bldg.
Toronto, Canadian Link-Belt Co., Ltd.



Three Great Time Savers

You can use electric power to increase factory efficiency as profitably as you use the telephone and telegraph to increase personal efficiency.

The perfect reliability of electric power from G-E motors and controllers keeps the wheels turning twenty-four hours a day, year in and year out, if necessary—production is greatly increased.

This power from G-E motors and controllers meets every requirement of your machines—whether you wish quick or slow starting and braking, constant, variable or varying speed—which means more and better product.

Our engineers have applied electricity to many industrial power problems. You are invited to avail yourself of their suggestions when considering means for increasing production.

General Electric Company

General Office: Schenectady, N. Y.
ADDRESS NEAREST OFFICE

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San Francisco, Cal.
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Seattle, Wash.
Spokane, Wash.
Springfield, Mass.
Syracuse, N. Y.
Toledo, Ohio
Washington, D. C.
Youngstown, Ohio.

For Michigan business refer to General Electric Company of Michigan, Detroit.
For Texas, Oklahoma and Arizona business refer to Southwest General Electric Company (formerly Hobson Electric Co.), Dallas, El Paso, Houston and Oklahoma City. For Canadian business refer to Canadian General Electric Company, Ltd., Toronto, Ont

Motor Agencies in all Large Cities and Towns

6427

Solve your power problems electrically

SAY I SAW IT IN BRICK AND CLAY RECORD

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Everywhere You Turn—You See

SCANDINAVIA

THE SOLID WOVEN COTTON BELT

THE SCANDINAVIA BELTING COMPANY

106-108 Reade Street New York

BRANCHES: Atlanta, Chicago, Pittsburgh, Boston, Cleveland, Buffalo,
San Francisco, Easton, Pa., Los Angeles and Portland, Ore.

The Federal Engineering Co., Ltd. Toronto and Montreal, Canada

Brick Drying

We build various types of dryers, which makes it possible for us to install that dryer which is best adapted to your particular clay.

Our Waste Heat Dryer is the most economical dryer on the market because it is operated with the waste heat from your cooling kilns.

Let us write you regarding a dryer. A conference costs you nothing.

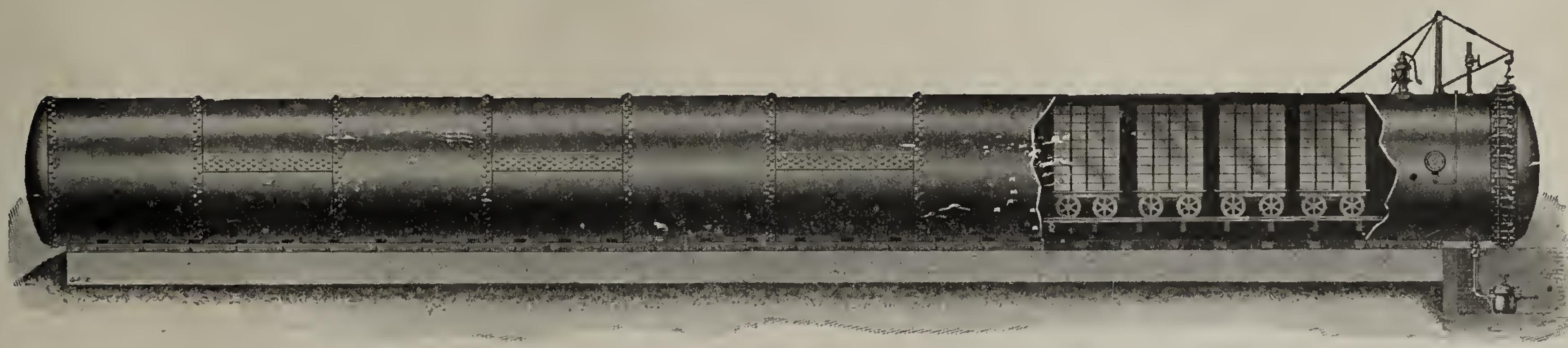
The American Clay Machinery Company, Bucyrus, O.

Sand Lime Brick Machinery

Our Sand Lime Brick Machinery is operating in the best plants in the country. Every machine has a "Built In Quality" which insures economical and successful operation. A maximum output with minimum cost. We build all machinery required for making high-grade Sand Lime Brick and will quote you on a complete plant or any single unit.

The American Clay Machinery Company

Willoughby, O.



Five Dollar Coal

Five Dollar Coal means a lot to the brick maker. You cannot afford it without increasing the price of your brick. Neither can you afford to ignore the fact that the Haigh Kiln will save half your fuel.

One Paving Brick Factory using the Haigh Kiln, burns 1,200 pounds of coal to each thousand blocks. They make 175,000 blocks a day which is 105 tons of coal. With coal at $5.00 per ton, the saving would be $525 daily.

You may not be making that many brick each day but your saving in coal would be proportional.

Can you afford to waste half your coal no matter what the price?

Let us help you figure out the saving a Haigh Kiln would mean to you.

The Haigh Kiln pays for itself, why not use it?

The American Clay Machinery Co.

Bucyrus, Ohio

Brick and Clay Record Buyers' Directory of Manufacturers of Machinery, Equipment and Supplies

See Table of Contents Page for Advertisers Directory

Analysts and Chemists, Clay.
Ceramic Supply & Cons. Co.

Aerial Tramways.
Broderick & Bascom Rope Co.

Babbitt Metal.
Cleveland Alloys Co.
Toronto Fdry. & Machine Co.

Automobile Trucks.
Federal Motor Truck Co.
Kelly-Springfield Motor Truck Co.

Barrows and Trucks.
American Clay Machinery Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Chicago Brick Machy. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Toronto Fdry. & Machine Co.
Lakewood Engineering Co.
Wallace Mfg. Co.
Weller Mfg. Co.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.

Belting.
Gandy Belting Co.
Hettrick Mfg. Co.
Main Belting Co.
Quaker City Rubber Co.
Sawyer Belting Co.
Scandinavia Belting Co.

Belt Conveyors.
Ceramic Supply & Cons. Co.
Gandy Belting Co.
Hettrick Mfg. Co.
Link-Belt Company.
Manufacturers Equipment Co.
Morse Chain Co.
Quaker City Rubber Co.
Scandinavia Belting Co.
Weller Mfg. Co.

Belt Dressing.
Cling-Surface Co.
Hettrick Mfg. Co.
Sero Specialty Co.

Belt Fasteners.
Crescent Belt Fastener Co.
Flexible Steel Lacing Co.

Boilers.
(See Engines and Boilers.)

Brick Conveyors.
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Brewer & Co., H.
Ceramic Sup. & Cons. Co.
Chambers Bros. Co.
Fate Co., J. D.
Link-Belt Company.
Manufacturers Equipment Co.

Brick Handling Machinery.
Mathews Gravity Carrier Co.

Brick Machines.
(See "Dry Press," "Stiff-Mud" and "Soft-Mud.")

Cables and Cableways.
Broderick & Bascom Rope Co.

Cars.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Fate Co., J. D.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.
Standard Dry Kiln Co.
Toronto Fdry. & Machine Co.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.
Youngstown Steel Car Co.

Car Movers.
Marion Mach., Fdry. & S. Co.

Castings.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Link-Belt Company.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Chain
Link-Belt Company.
Union Chain & Mfg. Co.
Woodhouse Chain Works.

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American Clay Machy. Co.
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Freese & Co., E. M.
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Manufacturers Equipment Co.
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Steele & Sons, J. C.
Toronto Fdry. & Machine Co.

Clay Gatherers.
Eagle Iron Works.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Clay Steamers.
American Clay Machy. Co.

Clocks.
Hardinge Bros., Inc.

Clutches.
Hill Clutch Co.
Link-Belt Company.

Coloring.
Williams & Co., C. K.

Conveying Machinery.
(See Elevators and Conveyors.)

Counters.
Ceramic Supply & Cons. Co.

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Bonnot Co.
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Chicago Brick Machy. Co.
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Freese & Co., E. M.
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Wallace Mfg. Co.

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Chicago Brick Machy. Co.
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Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Machine, Fdry. & Supply Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

Cutting Wires.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

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Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D., Co.
Freese & Co., E. M.
Louisville Machine Co.
Manufacturers Equipment Co.
Nuttall Co., R. D.
Weller Mfg. Co.

Digger.
Buckeye Traction Ditcher Co.

Disintegrators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equip. Co.
Marion M., Fdry. & Sup. Co.

Door Carrier (Dry Kiln).
Dry Kiln Door Carrier Co.

Drills.
Sanderson-Cyclone Drill Co.

Dryers.
American Blower Co.
American Clay Machy. Co.
American Process Co.
Bartlett & Snow Co., C. O.
Bonnot Co.
Boss Co., J. C.
Chambers Bros. Co.
Fate, J. D., Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Philadelphia Textile Machy.
Standard Dry Kiln Co.
Steele & Sons, J. C.
Trautwein Dryer & Eng. Co.
Wellington Machine Co.
X. L. Kiln & Dryer Co.

Dryers (Sand).
American Clay Machy. Co.
American Process Company.
Bonnot Company.
Ceramic Supply & Cons. Co.
Fate Co., J. D.
Jackson & Church Co.

Dry Pans.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Eagle Iron Works.
Fate Co., J. D.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Toronto Fdry. & Mach. Co.

Dry Press Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.

Dynamos and Generators.
General Electric Co.
Lincoln Electric Co.
Westinghouse El. & Mfg. Co.

Electrical Industrial Trucks.
Elwell-Parker Electric Co.
Orenstein-Arthur Koppel Co.

Elevators and Conveyors.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Gandy Belting Co.
Link-Belt Company.
Louisville Machine Co.
Main Belting Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Toronto Fdry. & Mach. Co.
Weller Mfg. Co.

Engines and Boilers.
American Clay Machy. Co.
Bonnot Co.
Bruce-Macbeth Engine Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.
Murray Iron Wks. Co.

Excavators.
Link-Belt Company.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Expansion Joints.
Barrett Company, The

Explosives.
Du Pont Powder Co.

Fans.
American Blower Co.
American Clay Machy. Co.
Bonnot Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Murray Iron Works Co.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.
Canton Grate Co.
Freese & Co., E. M.
Jackson & Church Co.
Murray Iron Wks. Co.

Filler (Paving).
Barrett Company, The

Filter Presses.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.

Flower Pot Machinery.
Baird Machine & Mfg. Co.

Flue Cleaners.
Marion Mach. Fy. & Sup Co.

Frogs and Switches.
Buckeye Rolling Mill Co.
Cincinnati Frog & Switch Co.
Orenstein-Arthur Koppel Co.
Toronto Fdry. & Machine Co.

Gas Engines.
Bruce-Macbeth Engine Co.

Gas Producers.
Wood & Co., R. D.

Gears.
Baird Machine & Mfg. Co.
General Electric Co.
Link-Belt Company.
Nuttall Co., R. D.
Toronto Fdry. & Machine Co.

Granulators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Wallace Mfg. Co.

Grates and Grate Bars.
Armstrong Mfg. Co.
Canton Grate Co.
Chicago Brick Machy. Co.
Cyclone Grate Bar Co.
Hook Patent Kiln Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Marion Mach., Fdry. & S. Co.
Murray Iron Wks. Co.
Smith Co., Claude.
Toronto Fdry. & Mach. Co.

Gravity Carriers.
Mathews Gravity Carrier Co.

Grease.
Stock Xylite Grease & Oil Co.

Hand Power Presses.
Fate Co., J. D.

Hoists.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate Co., J. D.
Link-Belt Company.
Manufacturers Equipment Co.
Weller Mfg. Co.

Hollow Brick Machinery.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.

Hygrometers or Moisture Indicators.
Taylor Instrum't Companies.

Insulating Brick and Powder.
Kieselguhr Co. of A.

Kilns.
American Clay Machy. Co.
Bonnot Co.
Boss Co., J. C.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Didier-March Co.
Fate Co., J. D.
Hook Patent Kiln Co.
Manufacturers Equipment Co.
Smith Co., Claude.
X. L. Kiln & Dryer Co.

Kiln Accessories.
Caldwell Co., W. E.
Fate Co., J. D.
Hook Patent Kiln Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.

Locomotives (Electric).
General Electric Co.
Goodman Mfg. Co.

Locomotives (Gasoline).
Fate Co., J. D.

Lubricants.
Garnet Mfg. Co.
Randall Graphite Sheet Lubricator Co.
Stock Xylite Grease & Oil Co.

Manganese.
Crimora Manganese Co.
Harshaw, Fuller & Goodwin Co.
Lavino & Co.
Roessler & Hasslacher Chemical Co.

Mortar Colors.
Williams & Co., C. K.

Molds.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.
Manufacturers Equipment Co.

Mold Sanders.
American Clay Machy. Co.
Bonnot Co.
Manufacturers Equipment Co.

Motors—Electric.
General Electric Co.
Lincoln Electric Co.
Westinghouse El. & Mfg. Co.

Motor Trucks.
Federal Motor Truck Co.
Kelly-Springfield Motor Truck
Kissel Motor Car Co.

Oil Burners.
Chicago Brick Machy. Co.
Weller Mfg. Co.

Packing.
Jenkins Bros.

Paints.
Williams & Co., C. K.

Pans, Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Jackson & Church.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Pallets and Trays.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

Patents.
Peck, Hubert E.

Perforated Sheet Metal.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Hendrick Mfg. Co.

Portable Track.
Cincinnati Frog & Switch Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.
Standard Dry Kiln Co.

Potters' Machinery.
Bonnot Co.
Baird Machine & Mfg. Co.
Fate Co., J. D.
Toronto Fdry. & Mach. Co.

Powder.
Du Pont Powder Co.

Power Plant Equipment (Complete).
American Clay Machy. Co.
Bonnot Co.
Jackson & Church Co.
Link-Belt Company.
Murray Iron Wks. Co.
Taylor Inst. Companies.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Power Transmission.
Baird Machine & Mfg. Co.
Link-Belt Company.
Morse Chain Co.

Producer Gas Engines.
Bruce-Macbeth Engine Co.

Pug Mills.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Potts & Co., C. & A.
Steele & Sons, J. C.
Wallace Mfg. Co.

Pulverizers.
(See Crushers.)

Pulleys.
Cork Insert Company.

Pyrometers.
Beighlee Instrument Co.
Bristol Co.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Sander Instrument Co.
Stupakoff Laboratories.
Taylor Instrum't Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.

Rails (Frogs and Switches).
Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Engineering Co.
Orenstein-Arthur Koppel Co.
Toronto Fdry. & Mach. Co.

Rattler.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.

Recording Gages.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Price Electric Co.
Sander Instrument Co.
Taylor Instrum't Companies.

Represses.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Steele & Sons, J. C.

Rope Preservative.
Cling-Surface Co.

Roofing Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Fate Co., J. D.
Freese & Co., E. M.

Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Equipment Co.

Sand Dryers.
American Clay Machy. Co.
American Process Co.
Bonnot Co.
Fate Co., J. D.
Jackson & Church Co.

Sand Lime Brick Machinery.
American Clay Machy. Co.
Ceramic Supply & Cons. Co.
Chicago Brick Machy. Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.

Scrapers, Plows and Clay Gatherers.
Eagle Iron Wks. Co.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chase Fdry. & Mfg. Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Hendrick Mfg. Co.
Lakewood Engineering Co.
Link-Belt Company.
Louisville Machine Co.
Schofield-Burkett Cons. Co.
Sturtevant Mill Co.
Weller Mfg. Co.

Sewer Pipe Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Shovels (Power).
American Clay Machy. Co.
Link-Belt Company.
Marion Steam Shovel Co.
Thew Automatic Shovel Co.
Osgood Co.

Silent Chain Drives.
Link-Belt Company.
Morse Chain Co.

Soft Mud Brick Machines.
American Clay Machy. Co.
Bartlett & Snow Co., C. O.
Bonnot Co.
Chambers Bros. Co.
Eastern Machy. Co.
Manufacturers Equipment Co.
Potts & Co., C. & A.
Wallace Mfg. Co.
Wellington Machine Co.

Steam Separators.
Canton Grate Co.

Stiff Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Steele & Sons, J. C.
Wallace Mfg. Co.

Steel Pallets.
Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.

Steel Towers.
Caldwell Co., W. E.

Supplies.
American Clay Machy. Co.
Bonnot Co.
Brazil Machine & Fdy. Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Wallace Mfg. Co.
Weller Mfg. Co.

Tanks.
Caldwell Co., W. E.

Thermometers.
Beighlee Electric Co.
Bristol Co.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Manufacturers Equipment Co.
Standard Dry Kiln Co.
Taylor Instrum't Companies.
Thwing Instrument Co.

Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Brazil Machine & Fdry. Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Toronto Fdry. & Mach. Co.
Wallace Mfg. Co.

Trucks.
Federal Motor Truck Co.
Kelly-Springfield Motor Truck
Kissel Motor Car Co.

Turntables.
Orenstein-Arthur Koppel Co.
Toronto Fdry. & Mach. Co.
Lakewood Eng. Co.

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Broderick & Bascom Rope Co.
Ceramic Supply & Cons. Co.
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Trade Names Now in Use

on Face Brick and Other Clay Products

The purpose of this directory is twofold; it serves to prevent a manufacturer from adopting a trade-name that is already in use—and it also helps manufacturers who use it to establish priority of claim to a name.

Algonquin—Alliance (O.) Brick Co.
Ante-Fired—London (Ont.) Pr. Bk. Tile Co.
Arabian—Dublois & Butler Co., Falls Creek, Pa.
Armor—Greenpoint Fire Brick Co., Brooklyn, N, Y.
Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.
Astrakhan—Columbus (O.) Bk. & Terra Cotta Co.
Beaverclay—Beaver Clay Mfg. Co., New Galilee, Pa.
Belden—The Belden Brick Co., Canton, O.
Bessemer Block—Bessemer Limestone Co., Youngstown, O.
Big Four Block—Big Four Clay Co., Canton, O.
Bokhara (Hy-tex)—Hydraulic-Press. Bk. Co., St. Louis.
Bossage—Hanover Red Pressed Brick Co., Newark, O.
Brocade—Toronto Fire Clay Co., Toronto, O.
Burlap—Key-James Brick Co., P. O. Alton Park, Tenn.
Caledonian—Fiske & Co., Inc., Boston and New York.
Car-Bex—London (Ont.) Pr. Brick & Tile Co.
Carlyle Block—Carlyle Pav. Brick Co., Portsmouth, O.
Century Block—Metropolitan Paving Brick Co., Canton, O.
Chaldean (Hy-tex)—Hydraulic - Press. Brick Co., St. Louis and Chicago.
Chinchilla (Hy-tex)—Hydraulic-Press Bk. Co., Indianapolis.
Citadel—Citadel Brick & Paving Block Co., Ltd., Quebec.
Claytex—Walton N. Cable, New York City.
Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.
Cloister—Western Brick Co., Danville, Ill.
Colonial Reds—Belden Brick Co., Canton, O.
Coralmatt—Coral Ridge Clay Pro. Co., Louisville, Ky.
Coralruff—Coral Ridge Clay Pro. Co., Louisville, Ky.
Cordova (Roofing Tile)—Gladding, McBean & Co., San Francisco and Lincoln, Cal.
Corduroy Velvet—Darlington (Pa.) Brick & Mining Co.
Coruga—Colonial Pressed Brick Co., Mogadore, O.
Corsweve—Thomas Moulding Brick Co., Chicago, Ill.
Coshocton—Coshocton (O.) Brick Co.
Craftsman—Pearl Clay Prod. Co., Bradford, Pa.
Crown—Green Fire Brick Co., A. P., Mexico, Mo.
Crucial—Crucial Fire Brick Co., Rome, Ga.
Cubans—Euclid Builders Supply Co., Cleveland, O.
Dabney—Dabney Brick Co., Galveston, Texas.
Darlington Rugs—Darlington (Pa.) Brick & Mining Co.
Denison—Mason City (Ia.) Brick & Tile Co.
Dutch—Dubois & Butler Brick Co., Falls Creek, Pa.
Eastvale Iron Spots—Eastvale Face Brick Co., Pittsburgh, Pa.
Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.
Empire—Green Fire Brick Co., A. P., Mexico, Mo.
Empire—Western Brick Co., Danville, Ill.
Everhard Antique—Everhard Co., Massillon, O.
Everhard Double-texture—Everhard Co., Massillon, O.
Everhard Fern-leaf—Everhard Co., Massillon, Ohio.
Everlasting—Mason City (Ia.) Brick & Tile Co.
Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.
Fallston Weavetex—Fallston Fire Clay Co., Pittsburgh, Pa.
Fisklock—Fiske & Co., Inc., Boston and New York.
Ginger—Fraser-Myers Co., Dallas, Tex.
Greendales—Hocking Valley Pro. Co., Columbus, O.
Greendale Red Rugs—Hocking Valley Pro. Co., Columbus. O.
Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.
Grid—Fiske & Co., Inc., Boston and New York.
Hanover Reds—Hanover Red Pressed Brick Co., Newark, O.
Hocking Block—Hocking Valley Brick Co., Columbus, O.
Holland Split—Thomas Moulding Brick Co., Chicago, Ill.
Homespun—Thomas Moulding Brick Co., Chicago, Ill.
Homestead—Farr Brick Co., Cleveland, O.
Hood's Pottry—B. Mifflin Hood Brick Co., Atlanta, Ga.
Hy-namel—Hydraulic-Press. Brick Company, St. Louis, Mo.
Hy-tex—Hydraulic-Press. Bk. Co., St. Louis, Mo.
Indian Head—Claycraft Mining & Brick Co., Shawnee, O.
Indiana Harvards—Indiana Brick Co., Anderson, Ind.
Ironclay—Iron Clay Brick Co., Columbus, O.
Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.
Keim—Keim Brick & Tile Co., Louisville, O.
McArthur Mission Brick—McArthur Brick Co., McArthur, O.
McArthur Rug Brick—McArthur Brick Co., Massillon, O.
Medal Block—Medal Paving Brick Co., Cleveland, Ohio.
Mexico, Mo.—Green Fire Brick Co., A. P., Mexico, Mo.
Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.
Milton—Milton (Ont.) Pr. Brick Co.
Montezuma Red Face—Montezuma (Ind.) Brick Works.
Mosaic—Western Brick Co., Danville, Pa.
Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.
Nelsonville Block—Nelsonville (O.) Bk. Co.
Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.
Old Hickory—Colonial Pressed Bk. Co., Mogadore, O.
Onondaga—Onondaga Vit. Brick Co., Syracuse, N. Y.
Old Rose Colonial—Montezuma (Ind.) Brick Works.
Olean Block—Sterling Brick Co., Olean, N. Y.
Oriental—Poston Paving Brick Co., Crawfordsville, Ind.
Pearl—Pearl Clay Products Co., Bradford, Pa
Persian Split—Thomas Moulding Brick Co., Chicago, Ill.
Portage-Ruffs—Keller Brick Co., Cuyahoga Falls, O.
Porter National—Globe Brick Co., East Liverpool, O.
Poston Knobstone Block—Martinsville (Ind.) Brick Co.
Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.
Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.
Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.
Red Velvets—Indiana Bk. Co., Anderson, Ind.
Regal—Euclid Builders Supply Co., Cleveland, O.
Reynoldsville—Reynoldsville (Pa.) Brick & Tile Co.
Ridgway—Ridgway (Pa.) Brick Co.
Rocktex—Citadel Brick & Paving Block Co., Ltd., Quebec.
Roman Ante-Fired Process—London (Ont.) Pressed Brick & Tile Co., Ltd.
Ruftex—Thomas Moulding Brick Co., Chicago.
Rug—Hocking Valley Pro. Co., Columbus, O.
Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.
Rustic—(London (Ont.) Pressed Bk. & Tile Co., Ltd.
Rustico (Hy-tex)—Hydraulic-Press. Bk. Co., Davenport, Ia.
Rustique Oriental—Martinsville (Ind.) Bk. Co.
Saraband (Hy-tex)—Hydraulic - Press Bk. Co., St. Louis, Mo.
Shale-Tex—Streator (Ill.) Brick Co.
Shirvan (Hy-tex)—Hydraulic-Press. Bk. Co., Cleveland, O.
Shor-Wil—Shorey - Willis Bk. & Supply Co., Cincinnati, O.
Special—Green Fire Brick Co., A. P., Mexico, Mo.
Speedway Block—Alliance (O.) Clay Prod. Co.
Standard—Green Fire Brick Co., A. P., Mexico, Mo.
Steel Clay—Straitsville Impervious Bk. Co. New Straitsville, O.
Sykesville—Reynoldsville (Pa.) Brick & Tile Co.
Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.
Stranger Reds—Reynoldsville (Pa.) Brick & Tile Co.
Tamco Brick—T. A. Morrison & Co., Montreal, Canada.
Tapestry—Fiske & Co., Inc., Boston and New York.
Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.
Templeton—Hay Walker Brick Co., Pittsburgh, Pa.
Tex-Tile—Clymer (Pa.) Brick & Fire Clay Co.
Textur—Thomas Moulding Brick Co., Chicago, Ill.
Texturesque—Diamond Brick Co., San Francisco, Cal.
Tiffany—Thomas Moulding Brick Co., Chicago.
Tiger Shale—Belden Brick Co., Canton, O.
Toronto—Toronto Fire Clay Co., Toronto, O.
Tosco—Lawhead Brick & Tile Works, Loogootee, Ind.
Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.
Turko—Rochester (Pa.) Clay Products Co.
Velour (Hy-tex)—Hydraulic-Press. Brick Co., St. Louis and Chicago.
Verd-Antique—Meacham & Wright Brick Co., Chicago, Ill.
Vertex—Beaver Clay Mfg. Co., New Galilee, Pa.
Vitri-Craft—Schuylkill Valley Vitrified Products Co., Oaks, Montgomery Co., Pa.
Vogue—Bessemer Fire Brick Co., Birmingham, Ala.
Volcanic—Beaver Clay Mfg. Co., New Galilee, Pa.
West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co.
Wire-Cut Lug Brick—Dunn Wire-Cut Lug Brick Co., Conneaut, Ohio.

The Medal Paving Brick Co.
Formerly
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Manufacturers of
MEDAL BLOCK
Repressed and Wire-Cut-Lug
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PORTER-NATIONAL
an All Fire Clay Paving Block
Manufactured by
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has long been recognized as the standard by which all other Flashed brick are measured. For Composition, Richness of Color and Durability it is without a peer.

Standards, Romans, Normans in seven colors in Stock.

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The Ironclay TRADE MARK FIRE-FLASHED BRICK VITREOUS SELF-CLEANING It washes its own face.

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And How to Build Them

A book containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc.

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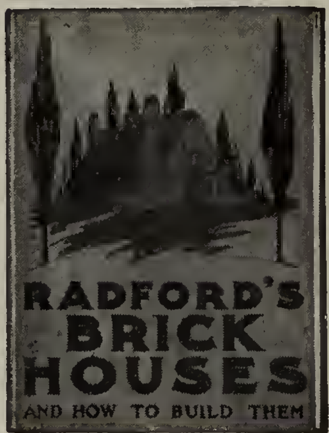

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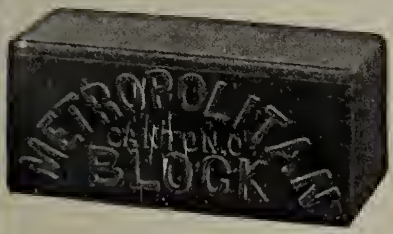

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Made from shale
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Many are not as good
A few may be as good,
None Are Better

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in the cost of production, there is no place it will show more than in the life and service of your kilns.

When building new kilns or preparing old ones, why not use material that will give best service, reduce repair bills, extend the life of your kilns, enlarge opportunities for increased output and swell profits?

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Do not overlook the quality of Fire Brick used in inner walls, crowns and fire arches of your kilns; this is all important. When fire brick begin to give away the whole kiln is impaired.

No brick construction will stand under strain of gradual contraction account of poor quality fire brick.

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We Can Save You Time, Money and Trouble on Fire Brick

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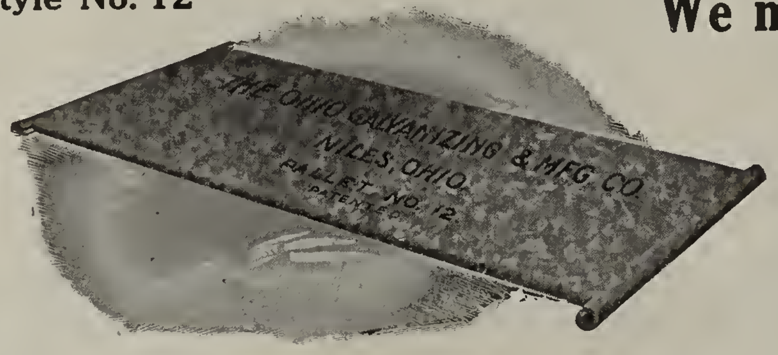

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We shall be pleased to give full description and detail information upon application.

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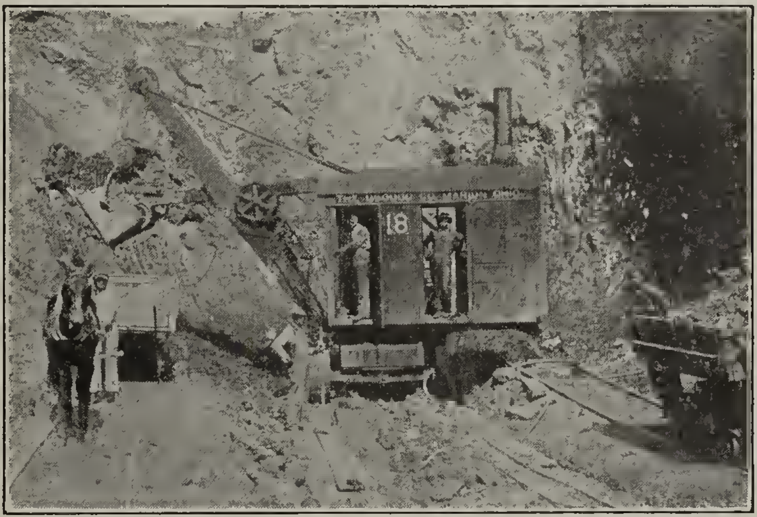

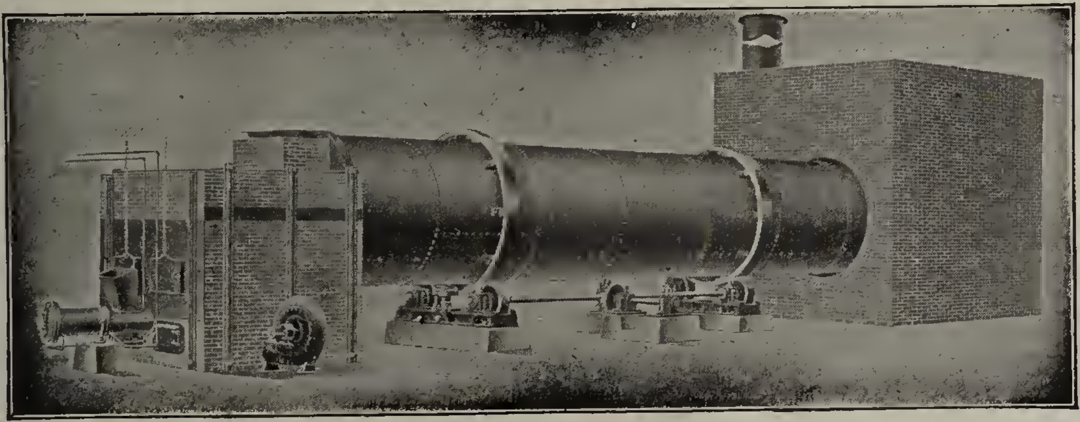

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DRY YOUR CLAY

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YOU CAN THEN OPERATE IN ANY WEATHER OR SEASON

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THE CHASE DRYER CARS

With patented flexible and reversible boxing and roller bearings

The *Best Equipment* is the Equipment that gives you the *Best Service*

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The two furnaces illustrated—and two others directly opposite—

Compose the entire furnace battery in one

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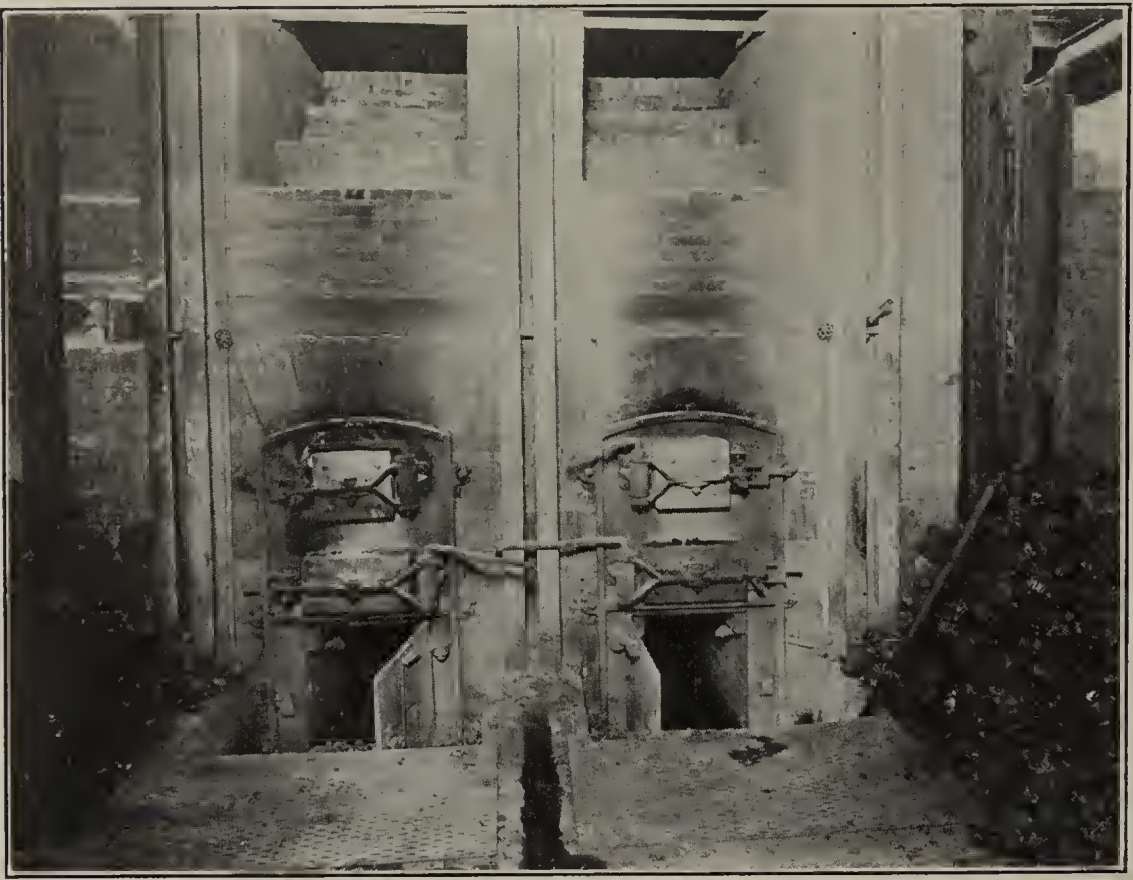

These furnaces are always at a constant uniform heat—never varying from day to day and month to month.

Just four furnaces do all the work.

Is it any wonder that kiln repairs are negligible—that fuel cost is less than half ordinary—or that the ware is burned perfectly uniform—no seconds?

Are you familiar with what this kiln can do for you? Why not find out—immediately?

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is bringing a mighty good profit these days to those manufacturers who were wise enough to consult us before they made their installations.

We have been in close touch with the Sand Lime Brick industry ever since it started, and our services in this connection are at the command of anyone interested. We know how to get you started right.

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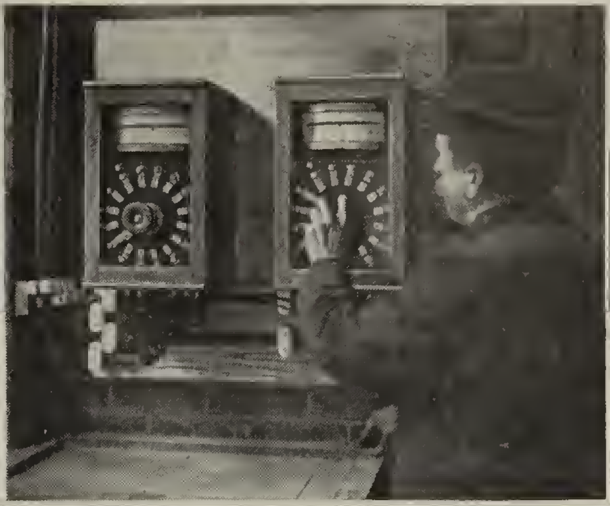
We can also supply your needs in Dry Press Machinery, Auger Machinery, Soft Clay Machinery, Grate Bars, Piano Wire Screens, and supplies of all kinds.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

Recording Instruments for Superintendent

View of Kilns



Indicating Instruments for Operator

BROWN PYROMETERS

DO YOU wish to measure the temperature of kilns, ovens, retorts, furnaces, flues or pipes? If so, there is a Brown High Resistance Pyrometer or a Brown Recording Thermometer to measure it. Give the Operator an instrument to guide him and install recording instruments as a check on him. That is efficient management. We have a catalogue of 72 pages which is sent on request.

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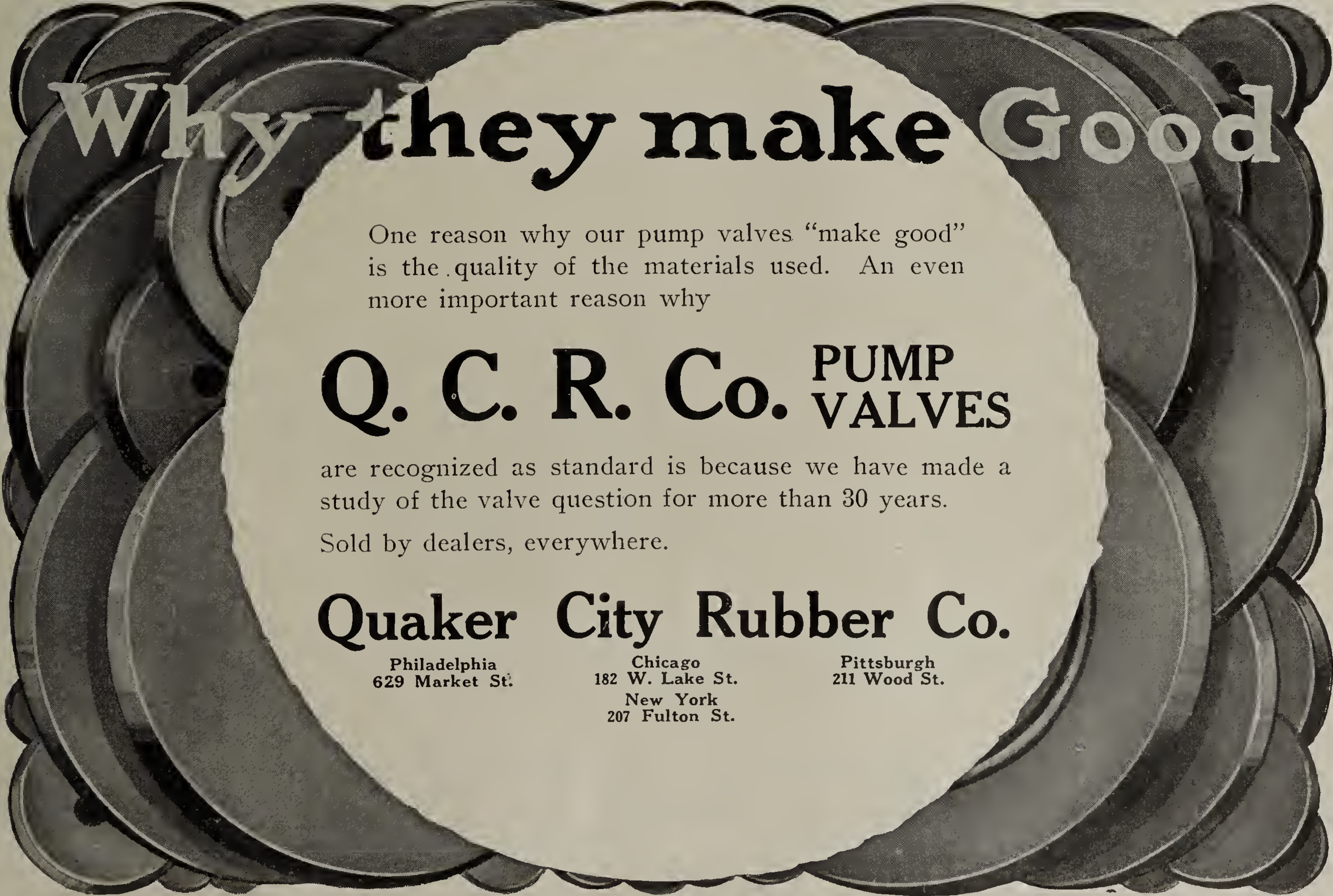

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One reason why our pump valves "make good" is the quality of the materials used. An even more important reason why

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FOURTH ANNUAL CLAY PRODUCTS DIRECTORY

write us immediately because we are compelled to limit the number of pages, and reservations will be accepted in the order in which they are received.

THE FOURTH ANNUAL CLAY PRODUCTS DIRECTORY

will be printed in our issue of January 2, 1917.

Briefly—the purpose of this directory is to foster a marketing exchange, and it has proven a remarkable success. You may be making hollow tile while a clay plant two or three hundred miles away makes only building brick. They see your name in this directory—they help you to sell your product in their locality and you help them in your section. It's simply an inexpensive, yet forceful way to boost for all kinds of clay products.

Also—this directory is used by architects, contractors and engineers, who are constantly in the market for brick and tile of all kinds.

This directory is preserved and referred to during the whole year and the cost of having your advertisement inserted may come back to you many times over during the year.

FOR FIVE DOLLARS YOU GET A SPACE MEASURING 3½ x 1½ INCHES—PLENTY LARGE ENOUGH FOR GOOD DISPLAY

Rush your order—send copy and we'll send you proof. We allow a discount of 5% if check accompanies order. No orders received after December 26, 1916.

BRICK & CLAY RECORD

445 PLYMOUTH COURT :: CHICAGO

SAY I SAW IT IN
BRICK AND CLAY RECORD

Put Half Your Wheeling Gang to Work on a Gravity Brick Conveyer

You won't need the other half.
Their salaries can be added to your profit.
You can save the cost of wheelbarrows also.

Catalog on Request

It's very simple–

Just put the brick on the steel, ball-bearing rollers—two, three or four at a time and let them run quickly and gently down into the car. Just a slight slant will cause the brick to run over the easy-running rollers for long or short distances, or turn corners, as desired. Made up in connecting sections for easy moving.

SPEED
MATHEWS GRAVITY CARRIER COMPANY
The MATHEWS WAY
The SAVING WAY
ECONOMY

MAIN OFFICE AND FACTORY
ELLWOOD CITY,
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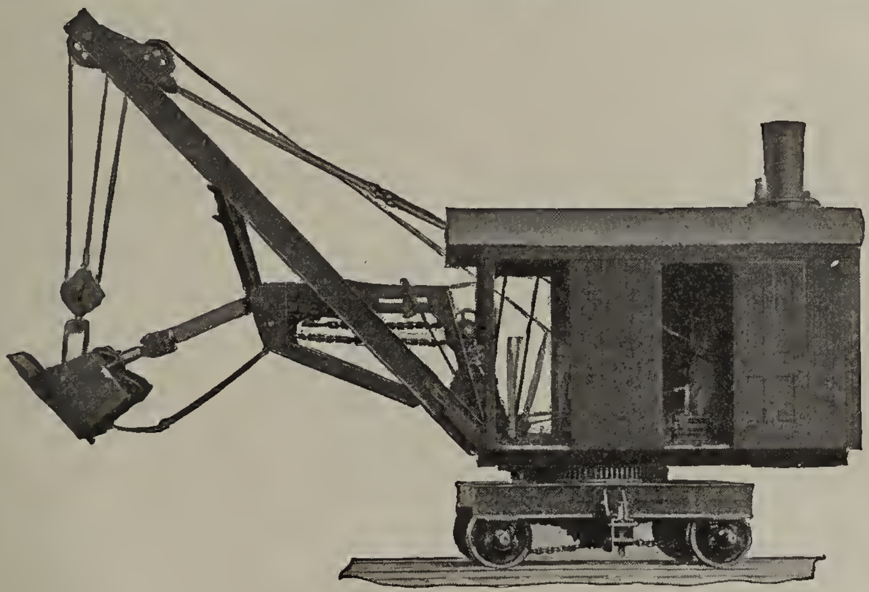
Type 0 Thew Loads Clay for 264,000,000 Brick in 9 Years
Type 3 Thew Loads Clay for 397,500,000 Brick in 15 Years



The above mentioned Type 0 is now loading clay for 120,000 brick per day, 300 days per year at the "F" Plant of The Farr Brick Company, Cleveland, Ohio.

The Type 3 referred to is now loading clay for 150,000 brick every day at the "G" Plant of the same company.

A Type 1 Thew, in its eleventh year of continuous service, in one of the plants of The Barkwill Brick Company at Cleveland, Ohio, loaded clay for 31,000,000 brick in 1915 and was shut down but one-half day during that time.

Over 300 Brick Manufacturers, in all parts of the country, are sending in similar testimony daily.

Is it any wonder the owner of the first Thew Shovel wrote after nearly 25 years of continuous service as follows, regarding his shovel?—"Our shovel is not very handsome to look at but it does its work without any trouble. I can't say anything too good for the shovel or The Thew Company."

There are certain fundamental principles in The Thew design that account for this ability to give maximum and continuous service at a minimum maintenance cost.

Buy a Thew and Free Yourself From Labor Troubles.

Write for Circular 22-C and List of Owners

The Thew Automatic Shovel Co., Lorain, Ohio

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Registered
STITCHED CANVAS BELTING

FOLDING

Straight and even folding by machine insures true running on the pulleys.

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Nothing but the famous Sawyer Red Elastic Belt Paint is ever used in painting this belting.

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Stitched in close parallel rows one-quarter inch apart.

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The heavy rolls of the Calendering machine make the belting smooth and even.

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Extreme care is exercised in the choice of oils used in the waterproofing compound.

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Thoroughly stretched before leaving the factory. This means no stretching on your pulleys.

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BELTING COMPANY
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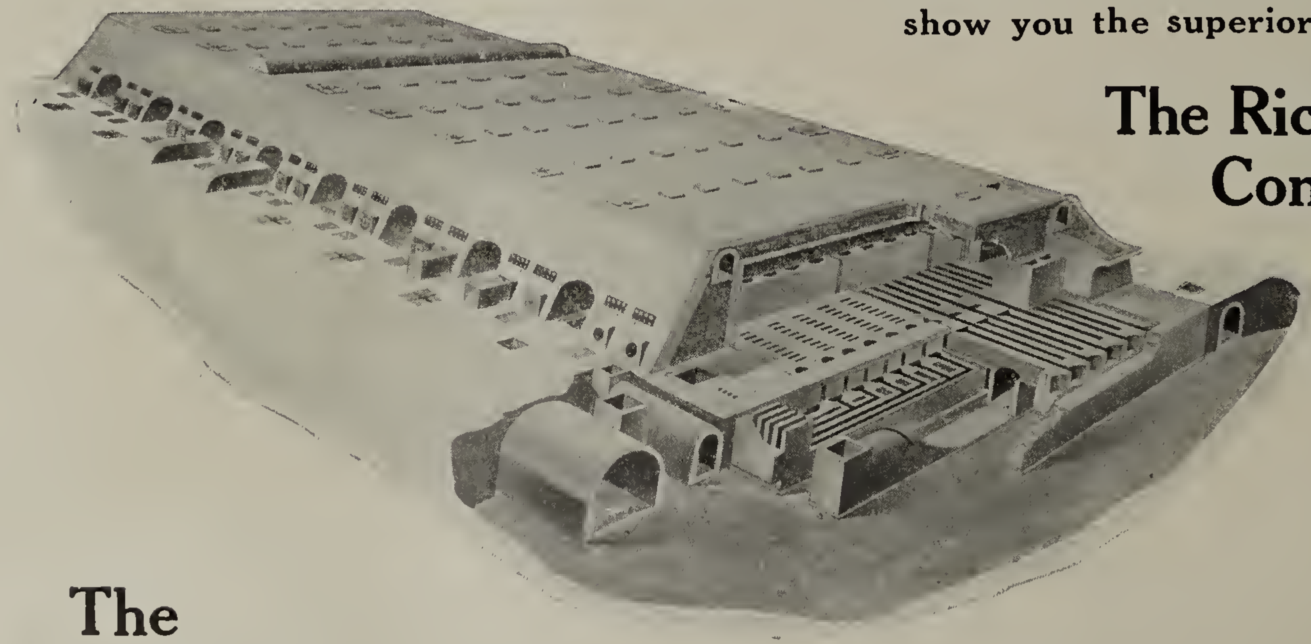
A Kiln Investment That Will Not Burn the Profits

Write for the above book and let it show you the superiority of

The Richardson Continuous Kiln

for burning *your* ware.



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Columbus, O.

Producers of Labor Saving Machinery for Clay Working Plants

SAY I SAW IT IN BRICK AND CLAY RECORD

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is the message being sent to the farmer from all sides. But what will it profit you, Mr. Burned-Clay Drain-Tile Manufacturer, if he obeys the command—and uses cement tile?

Oh, of course, **you** know that burned clay tile are the best, but it does not necessarily follow that everybody knows it.

The other fellow goes to trouble and expense to place his ware before the farmer in an attractive way. What are you doing? Why don't you get in the game and let the farmer know the truth—tell it to him in such a way that he cannot help but believe?

We will help you. The booklet shown below was written for this very purpose. It tells the story of drainage in a convincing and effective manner.

It is an interesting book, well illustrated—gotten up in a way that will appeal to the farmer.

It will not only make a convert of the man who does not believe in the value of underground drainage, but it will show him conclusively that Burned Clay Drain Tile are the only kind to use for satisfactory and permanent drains.

Let us send you free sample. Your order for any quantity filled promptly at the following prices:

In thousand lots, per thousand	$30.00
Five hundred	15.00
Three hundred	12.00
Two hundred	9.00
One hundred	5.00

"Don't wait for business to come to you—go after it.

TILE YOUR FARM
for Bigger and Better Crops
No investment pays so well so surely and so soon as - the amount spent in the purchase and placing of - WELL BURNED CLAY DRAIN TILE ......

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445 Plymouth Court **Chicago, Illinois**

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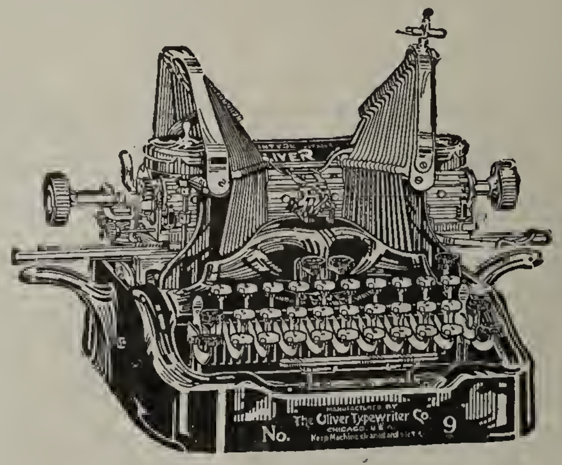
The No. 9 OLIVER

The Standard Visible Writer



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Yes, the crowning typewriter triumph *is here!*

It is just out—and comes years before experts expected it. For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

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The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models — famous in their day — never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hands. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

WARNING!

This brilliant new Oliver comes *at the old-time price.* It costs no more than lesser makes —now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

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17 CENTS A DAY Remember this brand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—*plus the Optional Duplex Shift, Selective Color Attachment* and all these other new-day features.

Yet we have decided to sell it to everyone everywhere on our famous payment plan — 17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, *included FREE if desired.*

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THE OLIVER TYPEWRITER CO., Oliver Typewriter Bldg., Chicago

You can rent an Oliver Typewriter 3 months for $4.00

INTERNATIONAL CLAY MACHINERY CO.
WE COVER THE GLOBE
WE WORK THE EARTH
DAYTON, OHIO
U.S.A.

International Service

Founded on the Twentieth Century idea that success in any field of endeavor depends on true reciprocity of interest and action.

One receives as one gives—that is the basis of International Service—a service which every Clay Worker will receive in dealing with us.

Put us to the test.

Let us prove to you that, regardless of your past experience in the purchase of machinery and equipment from any source, your dealings with us must be satisfactory to you before we consider any deal closed.

Every word of this we mean—100%—on this basis we solicit your patronage.

International Clay Machinery Company

Dayton, Ohio, U. S. A.

Everything from the Clay Bank to the Cars.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Classified Advertisements

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WANTED—Superintendent for large sewer-pipe factory with capacity of 2800 tons per month. Must have best of references. Give reference and state salary expected, in first letter. Address: 12-N, care of "Brick and Clay Record." 12-2P.

WANTED—Sewer-pipe pressman. Must be first-class pressman who can give best of references. Also branch maker. Address: 12-B, care of "Brick and Clay Record." 12-2

WANTED—Young man as superintendent, understanding the manufacture of Silica and Mangesite brick. American Fire Brick Company, Spokane, Wash. 12-2-2.

WANTED—POSITIONS.

WANTED—Position as superintendent, by Ceramic Engineer, over 20 years in the clay industry. Thoroughly competent in the manufacture of common and front brick, structural terra cotta, roofing tiles and paving blocks. Several years' practice as instruction burner. Best references. Address: 11-BB, care of "Brick and Clay Record." 11-2-3

WANTED—Position by Ceramic Engineer, with firm making face brick or paving brick. Thoroly experienced and competent in designing, building, developing and operating. Excellent references. Details on application. Address: 11-BA, care of "Brick and Clay Record." 11-2TF

POSITION WANTED—Young man at present employed as master mechanic and factory foreman of common brick plant, desires similar position with large plant or superintendent of small plant. Thoroughly understand the manufacturing of common and face brick. Good reasons for desiring to change. Best of reference. Address: 12-BC, care of "Brick and Clay Record." 12-2-1F.

WANTED—Position as superintendent of face or paving brick plant. Seventeen years' practical experience. Can design and erect plant and install machinery best adapted for material. Now employed, but desire better position. Nothing less than $175 per month considered. Can furnish the highest of references. Address: 12-BX, care of "Brick and Clay Record." 12-2TF.

WANTED—Position as superintendent by first-class ceramic engineer of twenty years' experience in paving brick, sewer pipe and hollow ware. Can handle all classes of labor to its utmost efficiency. Can adjust all classes of hollow ware dies. The best of reference. Address: 12-BW, care of "Brick and Clay Record." 12-2-2.

WANTED—Position as manager or superintendent by man of long and varied experience in the making of brick and tile, any process. Experienced and first-class burned, equally familiar with any kiln from clamp to continuous —clay or shale. Prefer concern burning face brick. Stay for results. Best references. Address: 12-BB, care of "Brick and Clay Record." 12-2-1.

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SUFERINTENDENT—Wants position. Accustomed to large outputs and quality. Full particulars. Write J. C., care of **W. Baines, Box** 308, Hamilton, Illinois. 12-2-2P.

WANTED—EQUIPMENT

WANTED—A good lot of flat steel pallets, about 10 in. x 34 in. A good 7-brick mold sander. Short line of bucket conveyor, boot and top. One 14 in. or 16 in. belt conveyor. Address: 12-BN, care of "Brick and Clay Record." 12-2-2.

WANTED—Board right-hand delivery cutting table or hand power rotary cutting table. Must be in good working order and cheap. Cannelton Clay Products Company, Cannelton, Ind. 12-1

WANTED—Second-hand steam shovel, about ½ yard. Advise make, condition, and lowest price. Virginia Brick Company, Suffolk, Va. 12-2-1P.

STEEL RAILS.

All sections, new and relaying, in stock for immediate shipment. Also FROGS, SWITCHES, SPIKES and BOLTS. We purchase old machinery, dismantle plants, and purchase scrap iron.

Let us know what you have to offer. Prices cheerfully quoted.

M. K. FRANK, Pittsburgh, Pa.

WANTED—One hand press, one Rust, American or Fate clay feeder—second-hand. D. G. Donahue, 312 Plymouth Bldg., Minneapolis, Minn. 12-TF

FOR SALE—SAND-LIME PLANTS

SAND-BRICK PLANT FOR SALE—Tube mill, dryer, lime grinder, elevators, conveyors, friction gear for pulling brick out of chamber, 22 brick cars. Manistee Brick Co., Manistee, Mich. 11-2-TF

MISCELLANEOUS

KILNS A SPECIALTY

Want to contract brickyard work, kilns a specialty. Build round kilns as large as 36 ft., fire boxes, flues, stacks, all in harmony—scientifically figured, and guaranteed to work.

Geo. Ogan, 108 Logan Ave., Danville, Ill. 6-2TF

WATER-SMOKE METERS tell when clay wares are dry, as certainly as scales tell weights. If you don't believe this, you don't understand it. You don't understand anything until it is demonstrated, explained, or studied. An explanation insures belief. Explanation free. R. W. Stewart, 304 East Lincoln Street, Findlay, Ohio. 12-2-1P.

WANTED TO INVEST a few thousand dollars in stock of a good going 12-month drain tile plant, and take position as manager or superintendent. Thirty-two years of age and 12 years in the business, a hustler. Address: 12-BA, care of "Brick and Clay Record." 12-2-3PX.

FOR SALE—CLAY LANDS

FOR SALE—Clay deposit. Will make face brick, tile and paving block. Common brick selling at $12.00. Address: 12-BD, care of "Brick and Clay Record." 12-2-1.

FOR SALE—CLAYWORKING PLANTS.

COMMON BRICK PLANT—30,000 capacity per day, 15 miles from Cincinnati. Product always oversold. Cost over $40,000, can be bought for about half. Address: 9-Common Brick, care of "Brick and Clay Record." 9-TF

FOR SALE—Account death of owner: 50,000 capacity common-brick plant. Standard dryer, twelve round down-draft kilns. Address: Mrs. H. M. Howard, Administrator, Columbus, Georgia. 11-2-3

FOR SALE OR LEASE—Twenty-thousand daily capacity brick plant. Correspondence solicited. Oscar Troy, Raton, New Mexico. 8-2-TF

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE—One No. 36 American Ring Hammer Pulverizer; run only a short time. Address: L. L. Stephenson, Lovick, Ala. 11-TF

FOR SALE CHEAP—Dry brick press. Can turn out 40,000 to 50,000 brick per day. Write: West End Scrap Iron & Metal Co., Duluth, Minn. 11-2TF

FOR SALE—Four-mold Boyd press, seven foot Boyd dry pan, Quincy clay gatherer. East Olean Land Co., Inc., Olean, N. Y. 6-TF

FOR SALE OR TRADE—Complete equipment for a stoneware pottery, Eagle 7 ft. dry pan, and Potts soft-mud machine and pallets. Address: 3-P, care of "Brick and Clay Record." 3-TFX

FOR SALE—New Ross Keller four-mold triple pressure brick press. Excelsior Tool & Machine Co., Manufacturers of Brick Presses and Pulverizers, East St. Louis, Ill. 11-TF

FOR SALE—One nine-foot independent muller dry pan, with 48x9 mullers; fitted with 72x14 pulley. In first-class condition, cheap. Wabash Portland Cement Company, Detroit, Mich. 12-2P

FOR SALE CHEAP—Two 2-mold represses, manufactured by the American Clay Machinery Company, Bucyrus, Ohio. Never used, and in good condition. Address: Freeport Clay Products Company, Freeport, Pa. 12-2-1.

FOR SALE—Six-mold Boyd dry press. Long Island Brick Company, 101 Park Avenue, New York City. 12-2-1.

FOR SALE—One J. D. Fate No. 2 disintegrator cheap, as we have changed equipment. We need gravity conveyor. What have you? Edgerton Brick and Tile Company, Edgerton, Ind. 12-2-2P.

FOR SALE

2 E. M. Freese & Co. J-Union Short Pattern brick machines. Capacity 120,000 per day.
2 E. M. Freese & Co. 14 ft. Pug Mills, rear end discharge.
2 E. M. Freese & Co., Model C Rotating Automatic Cutters. Capacity 120,000 per day.
1 Chamber Bros. Automatic End Cutter.
14 Chamber Bros. Double-Die Represses.
1 Giant American Clay Machy. Co. Brick and Hollow Ware Machine.
1 10-ft. American Clay Machy. Co. Pug Mill.
2 Lyle Clay Cleaners.

This equipment for sale because we are discontinuing the manufacture of stiff-mud brick and hollow ware. Address: 12-BR, care of ".Brick and Clay Record." 12-2-1.

FOR SALE

36 in. gauge, 10-ton American locomotive.

12 36-in. gauge, 5 yd. Western side dump cars.

Lot all steel cars, end and side dump.

5 36-in. gauge 40 lb. switches.

3 hoisting engines.

No. 14 Bonnot brick and tile machine.

E. E. McCartney, 769 Wilson Ave., Youngstown, Ohio. 12-2-1.

FOR SALE—One Brewer brick and tile machine, No. A9. One Brewer crusher, No. 45. One hand brick cutter. One Bensing automatic tile cutter. One 25 h. p. coal oil engine. Mikel A. Hayn, Kampsville, Ill. 12-2-1PX.

PROPERLY REBUILT MACHINERY IN STOCK—Boilers: Stationary, firebox and vertical, all sizes, high and low pressure. ENGINES: Corliss, automatic, throttling, gas and gasoline. GENERATORS and MOTORS: All sizes and kinds. HEATERS, PUMPS, valves, pipe, belting, saw mills, woodworking and iron-working machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and EJECTORS. Send us your requirements. We can fill them. The Randle Machinery Co., 1733 Powers St., Cincinnati, O. 5-2-TF

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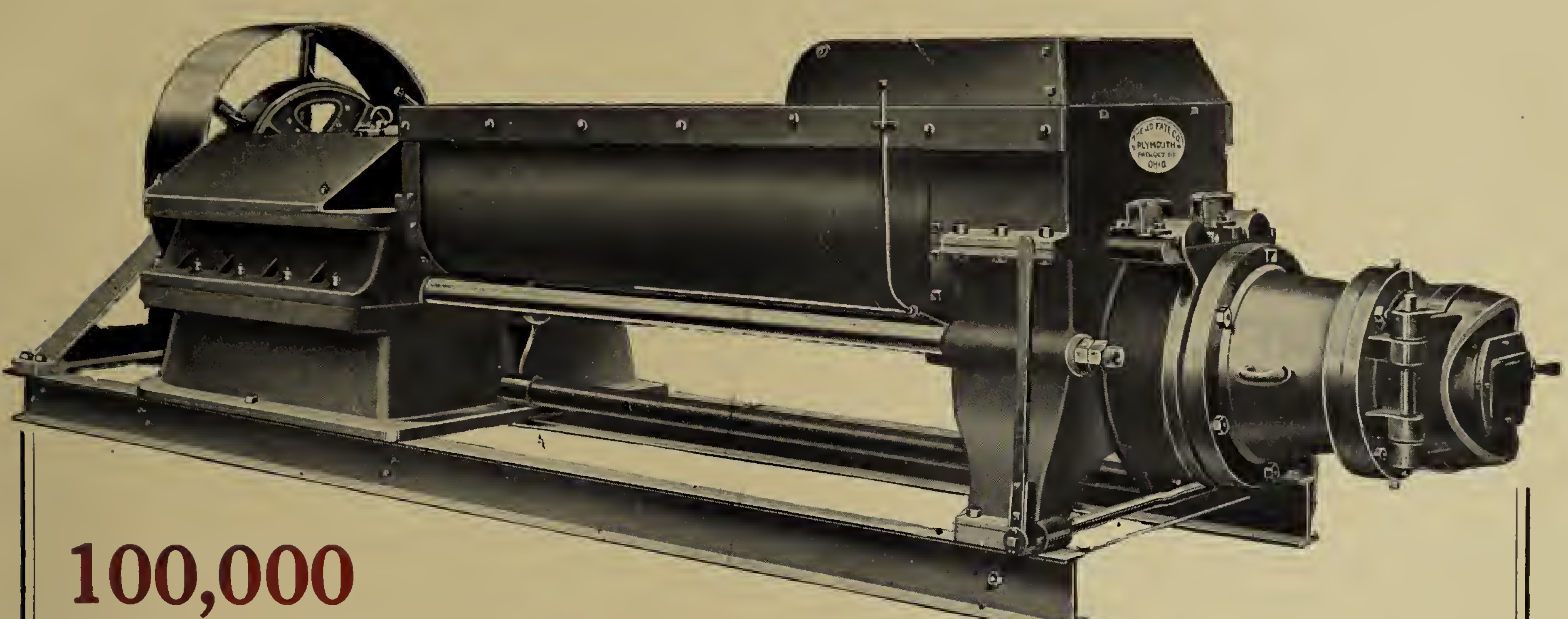

100,000 Perfect Face Brick Per Day May Be Made On This Machine

Sixty thousand to one hundred thousand Face Brick per day can be made upon this up-to-date "Special Premier" Brick Machine, according to the condition of the clay and facilities of the plant, besides effecting a great saving in power, belting and floor space over the separate machine and pug mill.

The Plymouth Pulling a Train of Ten Cars for the E. Biglow Co.

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Among the many who declare The Plymouth Locomotive has solved the friction drive is President E. O. Biglow, of The E. Biglow Company, New London, O., who says it is one of the superior points of The Plymouth and with it he is enabled to pull ten loaded cars of one and one-half yards capacity—aggregating 46,000 pounds—every trip.

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Is Equipped with Friction Drive Because—

1—It starts under heavy loads quicker. 2—It climbs steeper grades. 3—It has a limitless number of speeds, forward or reverse. 4—There is no waste energy. 5—It does not slip under heaviest loads. 6—It insures smooth-running motor without strain or stress. 7—It requires no lubricants. 8—The only wear is in the fiber wheel, which is good for several thousand miles. 9—It starts, stops and shifts noiselessly.

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"The Plymouth has solved the friction drive and there can be no consistent argument against it. We used one fiber rim four years. There is no loss of power. It certainly takes less power and strain to start a load than with any other transmission. Cost of repairs on the friction drive are practically nil. As to the fuel cost, we are consuming five gallons of gasoline and three-fourths of a pint of lubricant per day."

We have a book that tells the complete story of the Biglow operations and of many other owners of Plymouths. It is also full of description, cost data and other valuable information about haulage problems similar to your own. A copy is yours for the asking—send for it today.

The Fate

Special Premier Auger

Combined Brick Machine

This "Special Premier," with pug mill and auger combined, and having the Fate double pug shaft arrangement, is the second largest and heaviest of the Fate combined brick machines, yet it is heavier than the average brick machines in general use. The pugging tub has two pug shafts carrying knives which revolve toward each other and interwork, making the most thorough pugging device known.

The double pug shafts form a feature found only with Fate machines and the pugging capacity of a ten-foot double shaft pug mill has been found equal to twenty feet of a single shaft pug mill.

Immediately over the main cylinder of the machine the knives of the pug mill meet and interwork with the knives of the main auger shaft, forcing the clay down to the augers below, thus making a perfect force feed. The gears are of steel, running in oil in a dirt and dust-proof case. The journals are all on the outside of the pugging tub, the rear journals being inside the gear chamber, entirely protected from the action of the clay.

This machine is furnished with an iron friction pulley, with brass bushings, and should make from 140 to 160 revolutions a minute.

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Clay-Workers who are using the Fate line of clay-working machinery—from the pit to the finished product—are to be found in every part of the country. Let us send you the addresses of those nearest to you so you can investigate. You will find they are all profiting from the use of Fate Machinery.

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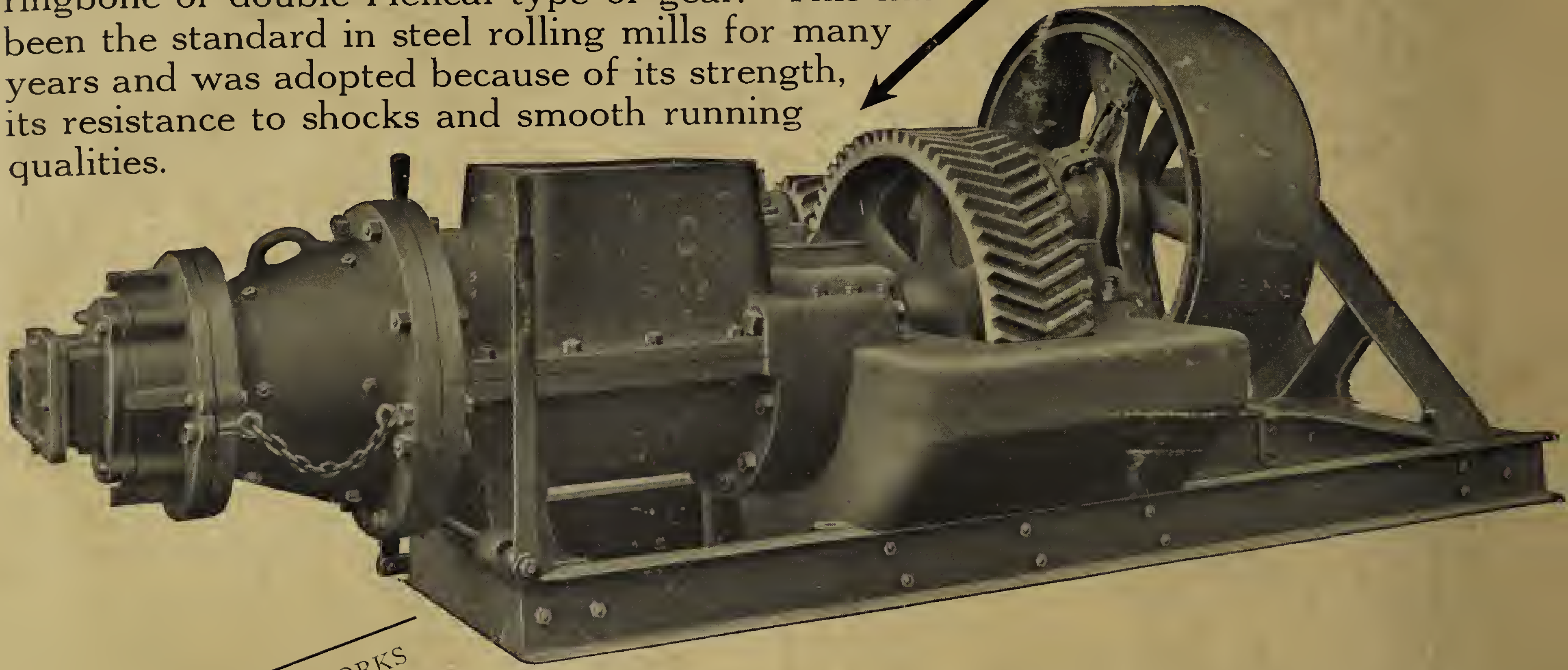
A Brick Machine Is No Stronger Than Its Gears

That's the reason particular attention is given to the gears used in each model of

Bonnot Clayworking Machinery

For instance—in our No. 18 machine, shown here, and which is made for heavy work, with a capacity of 6,000 to 7,500 standard size building brick per hour, we use the Herringbone or double Helical type of gear. This has been the standard in steel rolling mills for many years and was adopted because of its strength, its resistance to shocks and smooth running qualities.



OMAHA CLAY WORKS
OMAHA, NEBRASKA

AUGUST 10, 1915.

THE BONNOT COMPANY,
909 New York Life Bldg.,
Kansas City, Mo.

Attention Mr. Roy G. Smith.

GENTLEMEN: We are glad to express our satisfaction with all of the machinery and equipment we have purchased of you during the past four years.

We also wish to thank you and express our appreciation of the interest you have always shown in the welfare of our concern and the working of the equipment you furnished us.

Our business relations with you have been both pleasant and satisfactory.

Very truly yours,
OMAHA CLAY WORKS,
By A. Hansen.

The Bonnot No. 18 Machine has a gearing with a 12-inch effective face. Both the gear and pinion are cast from high-grade open hearth steel and are machine molded thus making them next to machine cut gearing in accuracy. It is guaranteed to stand rough work and hard shocks. When in use, the gears are covered with a sheet-metal cover which is dust-proof. There is also a reservoir so the gears can be run in oil, if desired.

The frame is cast in one piece and is perfectly rigid. The auger chambers, drum and frame are machined at all joints so there is perfect alignment of all the parts. The main shaft is hammered steel 6-in. diameter and countershaft 4½ in.

You ought to get acquainted with our No. 18

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